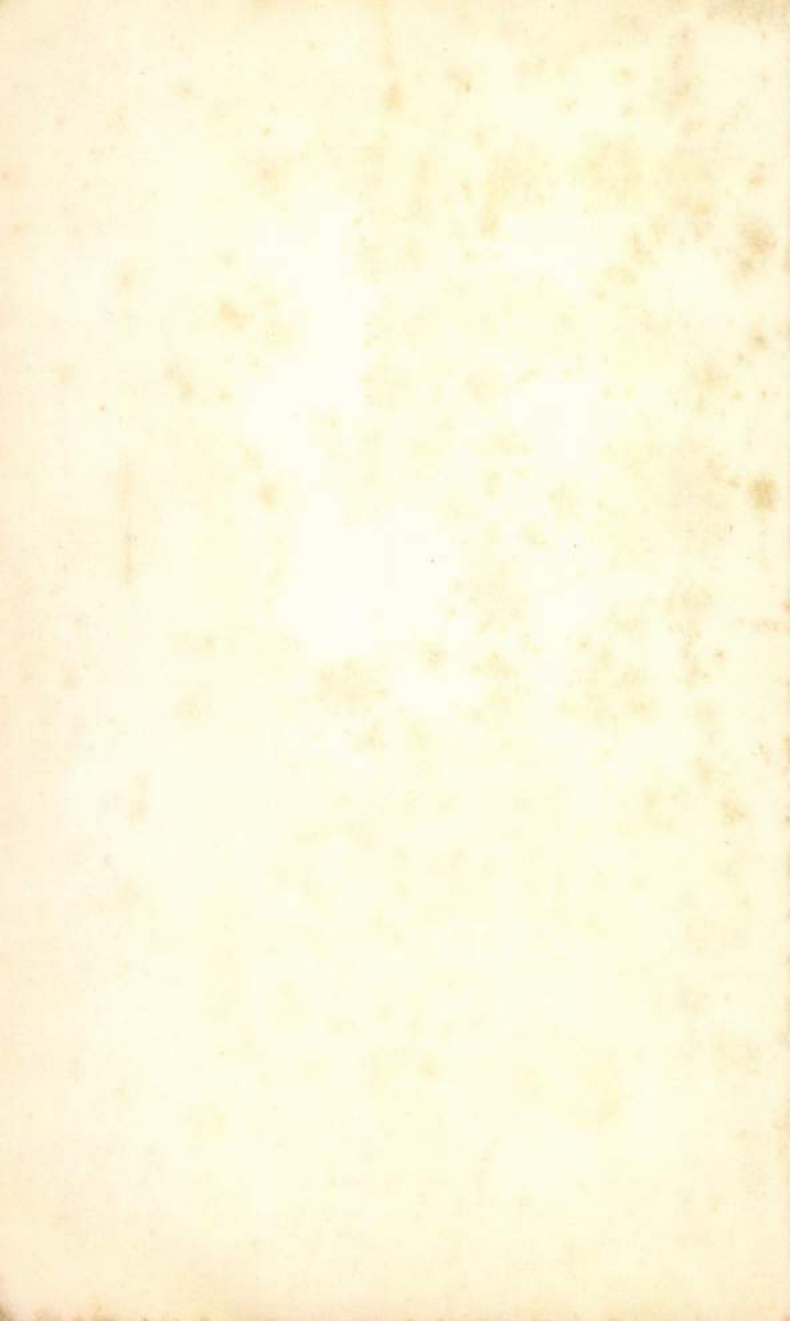


**THE MOST EXCITING CHALLENGE
IN COSMOLOGY SINCE
CHARIOTS OF THE GODS?**

THE MANNA MACHINE

GEORGE SASSOON AND RODNEY DALE





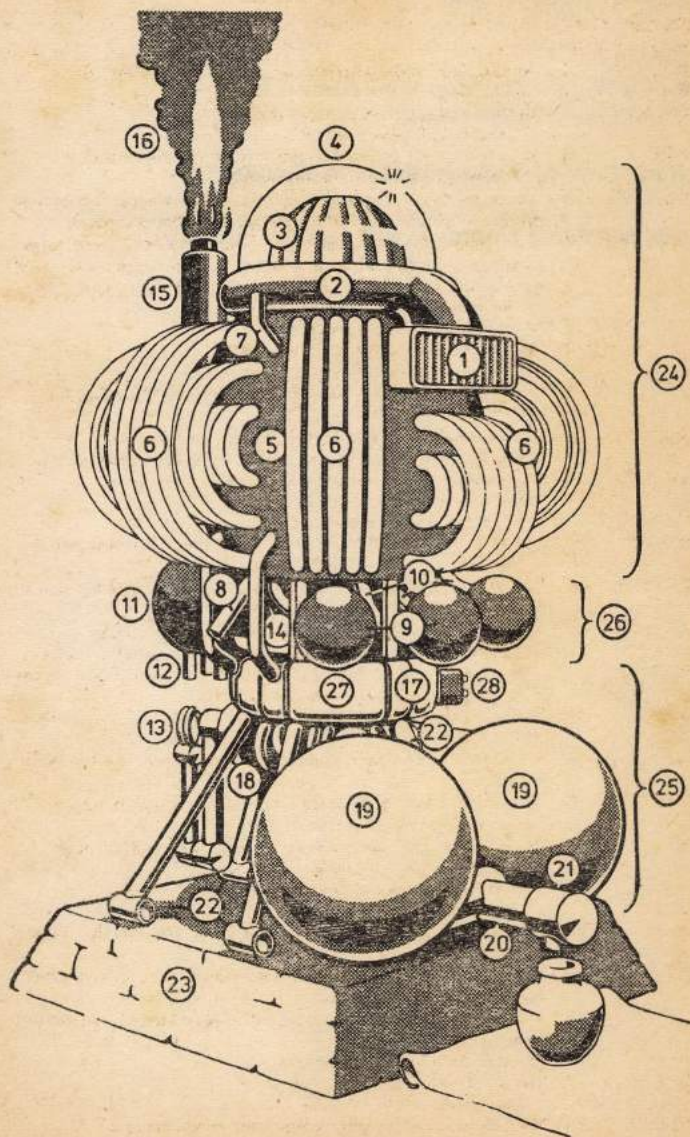
George Sassoon was educated at Oundle and King's College, Cambridge, where he read natural sciences. After graduating, he worked as a design engineer and later, with Rodney Dale and others, founded one of the first contract research and development organizations in Britain. Initially, he acted for the company as their technical translator, and then established electronics development and manufacturing facilities. On his parents' death, he found himself owner of estates in Wiltshire and Scotland, which occupy most of his time, though he has his own electronics laboratory and still does some consulting work. He is married and has one daughter.

Rodney Dale was educated at the Perse School and Queens' College, Cambridge, where he started to read natural sciences. Before taking his degree, however, he left and turned to mechanical engineering; then founded and ran a design and printing company for five years. In 1963, he joined George Sassoon full-time in contract research and development; first as a mechanical engineer, subsequently becoming the company's personnel and training manager. In 1976, he left to devote himself to writing. He is married and has three sons.

KEY TO FRONTISPIECE

See also
figures

- | | Part | |
|------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8.2 | 1 | 'Mouth' (air intake) carrying the 'breath of life' (air) via . . . |
| 8.2 | 2 | annular duct to . . . |
| 6.1, 8.2 | 3 | 'the brain of the Ancient One' (dew still).
The dew still is covered by . . . |
| 8.2 | 4 | 'the ether' or 'transparent outer skull of the Ancient One'.
The water from the still runs into . . . |
| 8.1 | 5 | 'the great sea' (<i>Chlorella</i> culture-tank) where the manna production starts: the culture-solution circulates through . . . |
| 14.2, 14.3 | 6 | 'the hairs of the beard of the Ancient One' (gas exchange pipes) and is irradiated by 'the upper eye' (the light-source in the centre of the culture-tank - not visible).
The culture-tank is furnished with . . . |
| | 7 | 'the remnant' (safety valve) and . . . |
| | 8 | 'the residues of the brain' (drain cock).
Connected to the culture-tank are . . . |
| 9.3 | 9 | 'the three lower eyes' (tanks containing nutrient salts) fed via . . . |
| 9.3 | 10 | 'the channels of the lower eyes' (connecting pipes).
The light and power for the machine are derived from . . . |
| 9.4, 14.4 | 11 | 'the fire-containing vessel' (nuclear reactor) with its . . . |
| 9.4, 14.4 | 12 | 'keys' (control rod actuators).
Remote handling is performed by . . . |
| 9.7 | 13 | 'the arm of the Small-faced One' (mechanical arm and hand).
The air drawn over the still passes through . . . |
| 7.1, 14.4 | 14 | 'the long nose' (ventilation duct) and is ducted past the reactor (11) in order to cool it and then convects up . . . |
| 7.1, 14.4 | 15 | 'the nose of the Small-faced One' (exhaust) producing . . . |
| 9.6 | 16 | 'the column of smoke by day and the column of fire by night'.
A Buchner pump (not visible) in the exhaust produces the vacuum needed to process the <i>Chlorella</i> in . . . |
| 9.5 | 17 | 'the cavities of the brain of the Small-faced One' (manna processing plant).
The Buchner pump is connected to 'the cavities of the brain' by . . . |
| 9.5 | 18 | 'the beard of the Small-faced One' (vacuum pipe manifold).
The processed manna is stored in . . . |
| 5.3 | 19 | 'the hosts' (manna storage vessels) and is drawn off through . . . |
| 5.3 | 20 | 'the penis' (manna discharge pipe) and . . . |
| | 21 | 'the cover of the penis' (vacuum lock).
The machine stands upon . . . |
| | 22 | 'legs as columns six' (six legs with rings for carrying poles) resting on . . . |
| 9.2 | 23 | 'the throne' (platform of local materials) which is 'cast down' when the machine is moved.
The whole machine 'the Ancient of Days' may be separated into . . . |
| 10.1 | 24 | 'the Ancient One' (top part) and . . . |
| 10.1 | 25 | 'the Small-faced One' (bottom part).
Between these two parts lie . . . |
| 10.1 | 26 | 'the nakednesses' (interface unit) below which are |
| | 27 | 'the crowns of the Small-faced One' (inspection covers) and |
| | 28 | 'the ear of the Small-faced One' (communications unit). |



Also by Rodney Dale

Catland

Louis Wain – The Man Who Drew Cats

The Tumour in the Whale

Basic Programming (with Ian Williamson)

The Kabbalah Decoded (with George Sassoon)

George Sassoon and Rodney Dale

The Manna Machine

Illustrated by Martin Riches

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To

Our Wives and Families

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Turning to the present day, there are many to whom we owe a debt of gratitude for their help and encouragement. We would single out our patient typist, Yvonne Archer; Josef Blumrich and other members of the Ancient Astronaut Society; Timothy and Henry Dale for their assistance in preparation; and Mike and Elna Hoare and Ken and Jenny Masters for their accommodation and interest.

We thank Messrs Jonathan Cape for allowing us to reproduce the list of Apache words from Peter Farb's *Word Play*, Hodder and Stoughton for permission to quote from Francis Schaeffer's *Joshua and the Flow of Biblical History*, and the Syndics of Cambridge University Library for permission to reproduce our Figures 2.1 and 3.1.

Finally, our greatest thanks are due to our wives and families for their unfailing support and tolerance during the period of our labours.

Authors' Note

We began this work as a piece of scholarly research. We have both spent our lives in the world of technical research and development, and are used to evaluating evidence, making use of it, communicating it to our fellows.

When we were certain that we had discovered a hidden (technical) meaning in some ancient texts, we naturally talked to our colleagues about it, expecting them to be as enthusiastic as we. But we were talking about texts hundreds of years old in a foreign language – not about a modern handbook written in English. We were talking about texts which had a religious or mystical flavour – not a scientific one.

Explaining our theories to others has therefore been far from easy. This makes us doubly grateful to those who have shown constructive interest in our work; those whose understanding and questioning has helped us.

We completed the manuscript of *The Manna-Machine* some time ago, but that did not mean the end of our researches.

George Sassoon's new, annotated translation of the *Book of the Mystery*, the *Holy Assemblies*, and the *Assembly of the Tabernacle*, edited by Rodney Dale, is now available under the title *The Kabbalah Decoded* from Gerald Duckworth & Co Ltd.

In *The Manna-Machine* we have been able to quote but an essential fraction of the total material available to us. Because *The Kabbalah Decoded* is the result of work refined after the completion of *The Manna-Machine*, readers may find some differences between the translations of the same passages

offered in the two books. For the purpose of the thesis we are developing here, these differences are not significant.

GEORGE SASOON
RODNEY DALE

Biblical Manna

The following is a compilation, from the King James Bible, of the stories of manna. This miraculous food first appeared after the Children of Israel escaped from Egypt with the help of the Lord. They have crossed the Red Sea (*or* Sea of Reeds) and are in the Wilderness of Sin (Exod. 16):

which is between Elim and Sinai, on the fifteenth day of the second month after their departing out of the land of Egypt . . .

Then said the Lord unto Moses, Behold, I will rain bread from heaven for you; and the people shall go out and gather a certain rate every day, that I may prove them, whether they will walk in my law, or no. And it shall come to pass, that on the sixth day they shall prepare that which they bring in; and it shall be twice as much as they gather daily . . .

And in the morning the dew lay round about the host.

And when the dew that lay was gone up, behold, upon the face of the wilderness there lay a small round thing, as small as the hoar frost on the ground. And when the children of Israel saw it, they said to one another, It is manna: for they wist not what it was. And Moses said unto them, This is the bread which the Lord hath given you to eat.

This is the thing which the Lord hath commanded, Gather of it every man according to his eating, an omer for every man, according to the number of your persons; take ye every man for them which are in his tents.

And the children of Israel did so, and gathered, some more, some less.

And when they did mete [measure] it with an omer, he that gathered much had nothing over, and he that gathered little had no lack; they gathered every man according to his eating . . .

And they gathered it every morning, every man according to his eating; and when the sun waxed hot, it melted.

And it came to pass, that on the sixth day they gathered twice as much bread, two omers for one man: and all the rulers of the congregation came and told Moses.

And he said unto them, This is that which the Lord hath said, To morrow is the rest of the holy sabbath unto the Lord: bake that which ye will bake to day, and seethe that ye will seethe; and that which remaineth over lay up for you to be kept until the morning.

And they laid it up till the morning, as Moses bade: and it did not stink, neither was there any worm therein.

And Moses said, Eat that to day; for to day is a sabbath unto the Lord: to day ye shall not find it in the field.

Six days ye shall gather it; but on the seventh day, which is the sabbath, in it there shall be none.

And it came to pass, that there went out some of the people on the seventh day for to gather, and they found none . . .

So the people rested on the seventh day.

And the house of Israel called the name thereof Manna; and it was like coriander seed, white; and the taste of it was like wafers made with honey

And Moses said unto Aaron, Take a pot, and put an omer full of manna therein, and lay it up before the Lord, to be kept for your generations.

As the Lord commanded Moses, so Aaron laid it up before the Testimony, to be kept.

And the children of Israel did eat manna forty years, until they came to a land inhabited; they did eat manna, until they came unto the borders of the land of Canaan . . .

The following year, however, the Children of Israel were somewhat tired of this food, and they wept, saying (Num. 11):

Who shall give us flesh to eat?

We remember the fish, which we did eat in Egypt freely; the

cucumbers, and the melons, and the leeks, and the onions, and the garlick:

But now our soul is dried away: there is nothing at all, beside this manna before our eyes.

And the manna was as coriander seed, and the colour thereof as the colour of bdellium.

And the people went about, and gathered it, and ground it in mills, or beat it in a mortar, and baked it in pans, and made cakes of it: and the taste of it was as the taste of fresh oil.

And when the dew fell upon the camp in the night, the manna fell upon it . . .

But the diet continued for forty years, and in the eighth chapter of Deuteronomy we find Moses reminding the Children of Israel of the goodness of the Lord, who had led them (Deut. 8):

these forty years in the wilderness, to humble thee, and to prove thee, to know what was in thine heart, whether thou wouldest keep his commandments, or no.

And he humbled thee, and suffered thee to hunger, and fed thee with manna, which thou knewest not, neither did thy fathers know; that he might make thee know that man doth not live by bread only, but by every word that proceedeth out of the mouth of the Lord doth man live.

This was both a pep-talk and a swan-song. Moses died, and the Lord appointed Joshua as his successor. Joshua led the people across the River Jordan into Canaan, the land 'flowing with milk and honey'. And that is where (Josh. 5) the manna ceased:

And the children of Israel encamped in Gilgal, and kept the passover on the fourteenth day of the month at even in the plains of Jericho.

And they did eat of the old corn of the land on the morrow after the passover, unleavened cakes, and parched corn in the selfsame day.

And the manna ceased on the morrow after they had eaten

of the old corn of the land; neither had the children of Israel manna any more; but they did eat of the fruit of the land of Canaan that year . . .

There are two other mentions of manna in the Old Testament, both reminders of the goodness of the Lord. In Nehemiah (9:20) the people are reminded that he:

witheldest not . . . manna from their mouths, and gavest them water for their thirst.

In the Psalms (78:24) we are reminded that he:

had rained down manna upon them to eat, and had given them of the corn of heaven.

Can manna have been a figment of the chroniclers' imaginations? We think not. But if it was not, what sort of food was it, and where did it come from? This book sets out to answer these questions and in doing so reveals the most amazing happenings on Earth, 3,500 years ago.

Part One

THE SOURCES

Introduction

We thought long and hard before we wrote this book, for it contains suggestions which even the most hard-boiled members of the permissive society have found distasteful – or even shocking.

It is not a pornographic work, though there is sex in it – of a rather unusual kind. It does not express extreme political views, though its contents might have some effect on politics. It is about religion.

How can a book about religion be shocking? Because, however remote our religious institutions may have become, we are all conscious of the religious background of our culture, and to find it questioned or attacked is upsetting.

Before we dreamed of writing this book, we were considering the age-old questions ‘Why are we here; what is life’s purpose; is there a supreme being?’ There is nothing unusual about this; indeed, it is the well-worn path to religion. To be sure, our path took us in that direction, to one of the world’s greatest literary works, the Hebrew Bible, otherwise known as the Old Testament. It led us to examine the momentous events described in the Book of Exodus – the appearance of the Lord to Moses, Moses’ assumption of the role of leader of the Israelites, the release of the Israelites from bondage in Egypt, their journey through the wilderness, and their re-emergence after forty years into the Promised Land.

But our path led us further than that. During their sojourn in the wilderness, the Lord provided food for the Israelites: that mysterious substance which they called manna. And then our path took us beyond the boundary of convention – it led us to the startling possibility that the manna had come from a machine given to the Israelites by the Lord.

The machine was of a kind which has been developed by today's technologists on Earth to provide oxygen and food for men in closed environments – such as interstellar space-vehicles – but the technology was superior to ours. We consider that the machine did exist and that the traditions surrounding it offer convincing proof that the Lord was an extraterrestrial visitor.

What is more, there is reason to believe that the machine still exists, hidden in a cave, and we are able to suggest where it might be found.

Now, we are certainly not the first to suggest that the Lord of the Israelites was an extraterrestrial visitor, neither are we the first to point out that some of the events described in the Bible look suspiciously technological. But we believe that we are the first to examine early Jewish traditions other than the Hebrew Bible, traditions commonly known as Kabbalah. And it is in these traditions that we have found the material for our thesis.

In effect, we are reappraising the basis for our Western religions.

Sociologists and anthropologists are shy, it seems, of studying them in the way that they study the 'primitive' religions of the world. To do so would be unthinkable, because these faiths seem somehow different from the cults of the less-favoured people of the globe. Governments preach against racial discrimination, yet government-supported science is one of the worst discriminators of all. For example, government funds have been used for studying primitive Melanesian religions. In the Coral Sea, an area of the South Pacific Ocean off the North-east coast of Australia, there are numerous small islands visited by Captain Cook some two centuries ago. The arrival of the white man, followed by trading ships bearing goods both useful and useless to the islanders, seems to have given rise to their 'cargo cults'.

'Cargo' is pidgin English for the goods which mark Western

materialism, and adherents to the cargo cults await their saviour who will come bearing unlimited supplies so that they neither have to work nor want again. Some call this saviour John Frum, and in 1940 someone with either foresight or good luck predicted that he would come. Sure enough, the United States Armies, fighting World War II in the South Pacific, arrived on the islands, set up their bases, and proceeded unwittingly to fulfil the predicted role of John Frum. When the war ended and the troops went away, the islanders naturally felt somewhat deserted, and intensified their rituals to persuade John Frum to return. For example, they hold mock parades using bamboos as 'rifles' and set up straw models of aeroplanes to entice the great, cargo-carrying monsters from the skies. Their holy objects are relics of the armies – items of clothing; discarded spare parts. Accounts of these people's practices are published, and we all laugh indulgently at the amusing antics of these ignorant savages. But how many official organizations would support a piece of research which showed that our own ancestors, and we ourselves, are no different from those war-painted spear-brandishing tribesmen? Very few, we suspect. Publication of such a work might throw doubt upon the assumed superiority of white European culture. Although we pay lip-service to racial equality, underneath we are still confident that we are more equal. We may adopt 'ethnic' modes of dress, hairstyle and behaviour, in a patronizing fashion, but our underlying attitudes do not change.

This book challenges those attitudes, and strikes at the very roots of our culture. It shows that once upon a time, white men too were confronted with a dazzling display of superior power and technology, and that they reacted in exactly the same way as those 'ignorant savages', who grovelled before the Great Silver Birds from the Sky, which brought them Gifts from the Gods. Let us tell you a Bible story (Exod. 19:16-20):

And it came to pass, on the third day, in the morning, that there were thunders and lightnings, and a thick cloud upon the mount, and the voice of the trumpet exceeding loud; so that all the people that was in the camp trembled. And Moses brought forth the people out of the camp to meet

with God; and they stood at the nether part of the mount. And Mount Sinai was altogether on a smoke, because the Lord descended upon it in fire: and the smoke thereof ascended as the smoke of a furnace, and the whole mount quaked greatly . . . And the Lord came down upon Mount Sinai, on the top of the mount . . .

Is this pure legend, with no foundation in fact? Is it a description of a mass religious vision? Is it a description of God in his fiery chariot? *Or is it an account of a being from the sky, descending in a shuttle-craft to visit his chosen people?*

(We suggest that the reader refreshes his memory by looking again at the Book of Exodus. It would also be well to keep a [King James] Bible at hand, as we refer to it from time to time.)

Nowadays, such happenings as the visit of the Lord described above are usually thought of as 'miracles'; inexplicable events which happened in olden days, but have now ceased. Not only the Bible, but religious books of other faiths, are full of accounts of wondrous events, visitors from the sky, fabulous goings-on of all kinds. Miracles, it seems, happened thick and fast at one time, but not any longer. So we think, but have the miracles really ceased?

When we hear a clap of thunder, and look up to see a vapour-trail being sewn across the blue sky by a shining silver needle, is this not a miracle? No – we simply say 'Concorde again', and get back to our work. Concorde does not seem to us to be a miracle, because we know that it is a product of our technology; although very few people have any idea of the detailed workings of Concorde, we all accept it because it is part of our culture. We know that if we were sufficiently interested and persevering we could find out every detail of how Concorde is designed and built.

Thus there is little wonder and no mystery about it. What, then, are we to make of the ancient miracles, the ones described in the old writings? Were the ancient people more ignorant, more superstitious than ourselves? Did they invent these stories of miracles for some purpose? Or were they recording events which actually happened?

We know from their achievements that the ancient peoples

were no less intelligent than ourselves, even though they lacked technology. When human labour was cheap there was no need for machines, so the thinkers used their intellects in other directions. The ancient Greeks brought philosophy and geometry to fine arts, and said almost all there was to be said about formal logic. The ancient Romans were among the world's finest civil engineers; Rome's modern piped water supplies frequently dry up during droughts – but the old aqueducts still keep flowing, supplying the city's fountains. The ancient Egyptians . . . but enough has been written of the pyramids. We know enough of the ancient peoples and their achievements to find it hard to believe that they would have recorded miracles unless something similar to what they described had actually happened. So what caused these happenings?

Supposing they were supernatural – magic, if you like. Why should they have suddenly stopped, a few thousand years ago? One would think that supernatural events would not be bounded in space or time. We must therefore conclude that they were natural events, but ones which were not understood by the ancients, who therefore described them as miracles. What types of natural events, then, could give rise to the legends we read in the old books? Very few of them cannot be explained in terms of our modern knowledge, or by an extension of it. In fact, they sound remarkably like technological feats, and we will be exploring many of them in this book. Can it be that there was once a technological civilization on Earth, similar to, or even in advance of, today's?

Some writers have postulated an early technical civilization to account for the legends, and suggest the mythical Atlantis as its centre. However, this explanation will not wash, on at least two counts; firstly, there is no geological evidence to suggest that a lost continent ever existed either in the Atlantic, or in any other ocean. If Atlantis did exist, it must have been a comparatively small island, such as Thera or Santorini in the Mediterranean. Secondly, if an early Earth-based civilization existed with the capabilities described in the legends, it would have been world-wide in extent, and traces of it would be everywhere. This is because technological advancement does

not happen instantly, and in one place. The process of discovery and invention is a step-by-step one, each step being the foundation for the next.

And like any foundation, it is more widespread than its superstructure: the older a discovery or invention, the more do we find it spread over the surface of the earth. One has only to consider the world's railways and airstrips to see that a technological culture would not – could not – have confined itself to one island, or even one continent. Technology requires rare and expensive metals and other raw materials, and there is no evidence of an earlier civilization's having ranged the planet seeking supplies as modern man has.

How can we possibly suggest that the miracles recorded by the ancients were technological? The answer lies in the records themselves. Traces of the miracle-working beings are found only at certain times, in certain places. They came, stayed a while, then left again: hundreds of years might pass between visits.

The American professor of philosophy, Schiavella, has pointed out that all religions have one thing in common – the earliest myths of the gods invariably describe them as physical beings. The Graeco-Roman gods, cavorting on Olympus, were literally super-human. They were able to withstand treatment which mere mortals could not – archetypal Toms and Jerries flattened under rocks one moment, resuming the chase the next. In India, the deities are often shown entwined in incredibly complicated sexual embraces. The behaviour of the early gods is like that of humans, except that it is larger than life. And according to the records, they claimed to have come from the stars, from a place which has come to be called 'Heaven'.

When we use the word Heaven nowadays, we are talking about religious matters; we have another word, 'sky', to refer to the space above our heads. As our knowledge of astronomy and space-exploration increases, so does the possibility of our accommodating Heaven somewhere 'out there' recede. Yet we still retain the concept of Heaven in the compartment of our mind labelled 'religion'. God is in Heaven: Concorde is in the sky. But suppose that Heaven and the sky (or 'the stars' or 'space') are all the same? Suppose that there really were

visitors from out there? To have arrived here, they would certainly have been in possession of a technology far superior to anything known on Earth at the time, and the technological feats which they would have performed – everyday to them – would have certainly seemed to the natives like the miracles of which we read.

This is the assumption which this book sets out to prove: that there were once 'gods' on Earth, but that they were space visitors. When they departed, their miracles ceased, but the legends arising from their visits remained, and from them developed the religious beliefs we hold today.

In the Old Testament we read of 'God', 'the Lord God', and 'the Lord'. The Hebrew generally gives either 'Elohim' or IHVH. Elohim is a plural form, and means literally 'the mighty ones'. IHVH is the name of the Lord of the Israelites: it is pronounced 'Yahweh'.*

From our foregoing arguments, we suggest that space visitors could provide the answer to the use of the different names. Elohim were the mighty ones who came to help our ancestors; the particular mighty one who interested himself in the Israelites was IHVH. After the departure of these visitors, man developed his religious beliefs and we find the idea of a single, abstract God developing, and morals and philosophy entering religion. Now the wheel has turned full circle: it may be easier for some of us to believe in technological civilizations in other parts of the universe, than to accept that the miracles of the ancients were 'supernatural'.

As engineers, we (the authors of this book) believe in hard facts, figures, formulae, graphs and specifications. If something does not work, we have to find out why, and make it work. If it does work, we try to make it work better, or we look for cheaper and easier ways of achieving the same results.

But our interest in finding out about things is not confined to engineering matters and, as we have said, we are equally

* After the destruction of the first Temple in -586, pronunciation of the name IHVH was avoided, for reasons to which we will come later, and 'Adonai' (the Lord) was substituted. When vowel-points (see Appendix I) were added to the Hebrew Bible in the early Middle Ages, it was still forbidden to pronounce the name, so the points from 'Adonai' were added to 'IHVH', giving the word JeHoVaH. IHVH is often referred to as 'the tetragrammaton' which is Greek for 'four-letter word'.

interested in the much larger questions of how and why we come to be here. In pursuing these questions, we found ourselves studying some purportedly mystico-religious texts, and we found statements which looked uncomfortably out of place. Here was something we could really get to grips with: an analysis of these texts. The principles of this task were parallel with those of engineering; for example, when one has to trace a fault, or reconstruct a missing wiring-diagram. And as we worked, we became more and more excited, for what took shape on our drawing boards was none other than the 'Ancient of Days'. What is more, the Ancient of Days turned out to be a machine, a machine so advanced that it could hardly be designed and built on this Earth today, let alone 3,500 years ago as the traditions stated.

Now, most people who have heard the name 'Ancient of Days' assume that it is another title for God, and it is so used in the hymns *Immortal, invisible* and *O worship the King*. There is a well-known picture by William Blake in the Whitworth Art Gallery, Manchester, commonly called *The Ancient of Days*, but it represents the cruel creator, Urizen, in Blake's mythology, and the title was not applied by Blake himself.

There is but one mention of the Ancient of Days in the Bible – in the Book of Daniel (7:9–):

I beheld till the thrones were cast down, and the Ancient of Days did sit, whose garment was white as snow, and the hair of his head like the pure wool: his throne was like the fiery flame, and his wheels as burning fire. . . . I saw in the night visions and, behold, one like the Son of man came with the clouds of heaven, and came to the Ancient of Days, and they brought him near before him.

The sense of this reference will become clear as we develop our theories.

However, there are other ancient holy writings apart from the Bible, and the story they tell of the Ancient of Days is the one which we are going to tell you.

But first, let us draw an analogy.

If we find an ancient, tattered manuscript which tells us of rides in miraculous chariots, which enabled people to travel

hundreds of miles in a single day, our immediate reaction is that whoever wrote the manuscript must have made it up, because there were no such chariots at the time when it was written. However, if the same manuscript goes on to say that the chariots had four seats, two in front and two behind, four wheels, two eyes in front which shone with a blinding white light, and two eyes behind which shone with a lesser, red light, then we can suspect – but no more – that this may be a description of a vehicle like a modern motor car. But if the manuscript continues by saying that the chariots were propelled by the spirit of the oil which comes from the ground in certain places, and that this spirit was conducted into spaces in an iron block where it was ignited by a spark, and that the burning of the spirit caused a piece of moving iron to be pushed down, this motion being used to drive the wheels, then we must say to ourselves: whoever wrote this knew how a motor car worked, even if he did not possess one. If the manuscript continues by giving descriptions of parts such as piston rings, carburettors, lead-acid batteries and the like, then we can only say, impossible though it may seem, that the author of the manuscript was the owner and driver of a motor car, long before such things were invented.

In this book we are going to tell you about just such a description. It was first written down in about 1290, as far as we know, but the experts agree that the content comes from traditions which are in fact a great deal older than this. It is not a description of a motor car, but of a less familiar type of machine – one for producing food. It made manna, the material which fed the children of Israel during their forty years' wandering in the wilderness.

The Old Testament of the Bible is the holy book of the Jews, and it is also the history of their development as a separate nation. The Jewish nation came into being as a result of certain miraculous events which took place about 3,500 years ago, in Egypt. A group of depressed immigrant labourers was rescued by 'the Lord' from slavery, taken out into the desert, and kept there for forty years under strict discipline. When the forty years were up, they had become transformed into a major power, and they were able to conquer the nations of Palestine and occupy their land. The people who call themselves

Jews today are the descendants of that original group.

All this is in the Bible. We must ask: is the history recorded in the Bible fact, or is it legend? One thing is certain – the Jews exist today, and they are a powerful force in the world, both in the new state of Israel and in the other countries of the world where they live. Throughout their history, they have had an influence on world affairs out of all proportion to their numbers. They are truly a remarkable people, and they believe that their Bible, which is also the first part of the Christian Bible, is their true history. So let us agree with them, and accept the Old Testament as an historical document.

According to the English translation of the Book of Exodus, 600,000 people came out of Egypt into the desert. However, according to some experts, this is an impossibly large number, and they suggest that 600 families was probably the true figure. (In Hebrew, the words for 'thousand' and 'family' are the same. Moreover, the Bible specifically states (Exod. 1:15-22) that there were only two midwives among them; far too few to have kept up with the birth-rate in a population of 600,000.)

The Bible tells us that these 600 families were fed on manna during their forty years' wandering. The manna is said to have been small grains of a sugary material, which fell from the sky during the night. In the mornings, the people collected it, and there was exactly one omer per family. An omer is an ancient Hebrew measure of volume – about 3.7 litres. (We note that the recently-published *Good News Bible* renders it as 2 litres.) However, on Saturday mornings there was no manna, so to make up for this there was a double issue on Fridays.

All this seems very odd. First, we have a fairly acceptable story of a mysterious figure, the Lord, who rescued the people from Egypt, and kept them in the desert for forty years; next, we are told that there were regular showers of food from the sky, following them in their wanderings, according to a strict weekly schedule. Many people who accept other religious stories refuse to believe the story of the manna, and yet the Jews insist that it is true. There have therefore been many attempts to 'explain' the manna, and it is often said to be an exudation of sap from the bodies of coccidae, insects like greenfly which parasitize on the tamarisk tree (*Tamarix*

mannifera). The material is secreted as drops of transparent liquid, which congeal into white globules, which melt in the heat of the sun.

The globules consist of glucose, fructose and a very small amount of pectin – in other words they are mainly sugar. Some is eaten by ants, and stored in their nests. Even today, the Sinai Bedouin collect this material and use it as a honey substitute. Was this the manna of the Bible? Authorities doubt it. Firstly, the quantities available are extremely small – there would be barely enough material in the whole Sinai peninsula to feed one family, let alone 600; secondly, if the manna only occurred near a certain type of tree, the Bible would surely have mentioned the fact; thirdly, this material is almost pure sugar, whereas the Biblical manna is described as 'bread' and as a basic food.

In addition to this, there are certain practical objections. For example, how was it possible to pick up several litres of small grains from the ground, in a few hours? We are told that the grains were 'like coriander'. As an experiment, we scattered some coriander seed on a loose sandy surface, and then tried to pick it up. The amount gathered in an hour would scarcely have fed a child, let alone a family. Unless the manna had fallen so thickly that it could have been shovelled up, collecting a reasonable quantity would have been impossible, and even then it would have had to have fallen on clear, smooth ground. Furthermore, it would be almost impossible to avoid picking up sand or stones together with the manna, and these would have had to have been removed in some way before the manna could be eaten. Yet the Bible does not mention any problems with sand in the manna.

A further objection is that the Bible states that there was one omer per family, which sounds as if there was some form of rationing. Yet how could the Israelite leaders have made sure that everybody got a fair share if the people were collecting it themselves? The very young, the very old, and invalids would not have been able to collect it so quickly, and it is difficult to believe that the more nimble-fingered individuals would willingly have surrendered their surplus to the less nimble. Yet the Bible mentions no disagreements over the fairness of the distribution. We could continue this list of

objections; however, it seems certain that, if the people of Israel did eat manna in the desert, it could not have fallen from the sky on to the ground. But the Bible insists that they *did* eat manna, and so far no satisfactory explanation for the nature of the manna has been forthcoming. This book offers one which, although it may be beyond the realms of experience, is nevertheless supported by evidence which cannot easily be dismissed.

The Old Testament is not our only source of information on Jewish history. An enormous amount has been collected in works such as the *Talmud*, which was compiled about +200. Complementing the Written Law (the Bible), is the Oral Law – that which is handed down by word of mouth. But there is also a body of oral tradition, some of which was supposed to be so secret that it could never be written down. It was preserved by being memorized and passed down from one generation to the next by word of mouth. However, in about 1290, somebody broke the rules and wrote some of it down – and we are fortunate that what he wrote has been preserved to this day. Our research leads us to believe that his book – the *Zohar* – contains the answers to all our questions about manna – and contains the proof that the Lord was a space visitor.

How can we justify this fantastic assertion? The *Zohar* is a book which has been around for a long time, and read by a number of people. If it contains proof that the Lord was a space visitor, why was this not discovered before? Simply because the wrong people were reading it – people who were theologians, not engineers. And few enough of them read it, for its study is not encouraged by the authorities. It is a strange book, and certain parts of it are even stranger – they describe a being called the Ancient of Days, and, even more incredible, they claim that the Ancient of Days fed the children of Israel when they were wandering in the desert.

The Ancient of Days is described in the most obscure language – the theologians believe it to be abstruse, mystical symbolism. We read the description, and said no! – this is neither symbolic nor mystical. It is straightforward mechanical description of a physical object. Some of the parts are given unlikely-sounding names – as we shall see – but the whole

description fits together perfectly. It is a description of a machine for doing just what is claimed – making a basic foodstuff.

If this is so, why is there no mention of the machine in the Bible? And why is this description to be found only in the *Zohar*, a book known to few and read by still fewer? We believe the reason is that the very existence of the machine was kept a closely-guarded secret, known only to a privileged few. 2,500 years of oral transmission were to pass before anyone dared to write this description down – and by that time, its real meaning had been forgotten. The information was memorized and passed on, for it described ancient, holy secrets even though, as time passed, it must have appeared to have been so much mumbo-jumbo. The author of the *Zohar* possessed 'The Secret Knowledge', and he wrote it down in his book together with much more conventional traditional lore. Today, we can recognize that mumbo-jumbo for what it is – a description of a manna-making machine, and some of the instructions for operating it. What is more, our interpretation explains many curious Jewish customs, and there is evidence in the Old Testament to support it.

Accepting that a machine existed, it would necessarily have been complex, and could not possibly have been made on this Earth 3,500 years ago – it therefore must have come from elsewhere. And it seems to have been brought by the Lord of the Israelites, for it was a product of an advanced technology, one even more advanced than our own today. The Lord, then, was not an invention, not a figment of a collective religious hallucination, nor was he God Himself – he must have been, as we suspected, a space visitor.

We will tell you why the Lord brought the machine for the Israelites. We will tell you how it worked. And we will tell you what happened to it after it disappeared from the Temple in Jerusalem, some centuries after it had stopped working.

Religion today is far less rigorous than it was in ancient times. In the old days, severe punishments were frequently inflicted for religious offences. The Jewish religion was liberal by the standards of the times, but nevertheless the death penalty was statutory for unauthorized persons who entered the Holy of

Holies of the Temple. The Temple was built at Jerusalem by King Solomon to house the Ark of the Covenant, which, the Bible tells us, was a richly-decorated wooden box containing certain relics. Why so much fuss for a wooden box, however holy? But the Bible also tells us that the Ark was lethal. Special precautions had to be taken by those who approached it (Lev. 8:1-13). Nadab and Abihu, Aaron's sons, were careless, and were struck dead by it; further special precautions had to be taken by those who removed their bodies (Lev. 10:1-7). The Ark claimed other victims, to whom we shall come later. Is this yet another fanciful legend – or could it be fact? We shall show that it is fact – except that the true Ark of the Covenant was no wooden box; it was identical with the Ancient of Days. According to later traditions, there were a few who entered the Holy of Holies and survived. What those who entered saw was the glittering, unearthly machine which, hundreds of years previously, had fed their ancestors in the desert, and which was jealously preserved as a secret reminder of the days when the Lord was with his people.

Perhaps now we can see why religion was serious business in those days; if the Lord and his angels were real, powerful beings they could have destroyed cities at the touch of a button if they were displeased. Today, memories of them have faded, and religion has become a mere social custom. It is not the gods who will destroy twentieth-century man for his sins, but man himself.

What finally became of the Ancient of Days? We shall explore this question later, but we believe that it was hidden in a now-forgotten place. We have clues to its whereabouts – who would dare to seek it, and what purpose could this serve? Might not the discovery of this relic of the Lord precipitate still further troubles in the already-unstable Middle East? Perhaps so – but there are positive advantages which would accrue from the discovery. Already, in the texts, we have discovered hints which would be helpful to modern food technologists.

If the machine was indeed able to produce a basic diet for 600 families for forty years, think what could be done towards solving the world's food problems if we were able to produce copies of it in large numbers! The people of the poorer

countries of the world might not wish to live solely on manna, but at least it would provide them with a staple diet until their own agriculture became established, and during droughts and famines. Food shortage is one of the biggest problems confronting the world today, and every possible avenue should be explored in seeking a solution to it. Perhaps we should set aside the possible political consequences, and mount an expedition to look for the Ancient of Days.

What else might result if this expedition were successful? We argue that, at last, we would have undeniable, physical proof that the space-visitors were real. World leaders would be forced to acknowledge that superior powers exist, against whom their puny H-bombs and ICBMs would be futile. Might we not then cease from our senseless squabbling, settle our differences, and put our house in order? One day the Lord and his angels may return, and if they do not like what they find – who knows what they might not do?

The Secret Law of Israel suggests that the Bible story of the Exodus is true, but with certain details suppressed. From it, we have inferred that the Lord was a space visitor, who provided the Israelites with a machine to feed them while in the desert. The existence of the machine was kept a closely guarded secret, except of course to those whose job it was to operate and to guard it. The compilers of the Bible, writing about the year – 500, tried to edit the texts so as to omit all mention of the machine and its function – but they did not quite succeed in papering over all the cracks. We will show how we have succeeded in getting a finger-nail underneath the paper, and, ripping it away, have disclosed the full truth. But before going further we should explain how we, two ordinary engineers, became involved in this research.

It all began one day in the year 1974, when we casually picked up a book called *The Kabbalah Unveiled*, by S. L. MacGregor Mathers. Kabbalah, it seems, is a curious field of activity, half magic and half religion, with a sinister and devilish reputation, not necessarily deserved. The book purported to be a translation of some ancient Kabbalistic texts – three books of the *Zohar* : the *Book of Concealed Mystery* (BoM), the

Greater Holy Assembly (GHA), and the *Lesser Holy Assembly* (LHA). Altogether there were seventy-one chapters, divided into 2,173 verses. The texts were almost entirely concerned with the physical details of an apparently god-like being called the Ancient of Days, described in the greatest detail. For example:

(GHA 287) . . . No beard is found which doth not arise from the brain of the head. But in this (last section) this (first part of the beard) is not considered as distinct (from the others). . . . The length of that portion of hair descending before the ears is not equal to the length (of the beard itself); neither doth it twine together, nor hang down far. But those hairs, when they flow down, are extended, and depend. And the beginning of the first disposition consists of thirty and one equal locks, extended even unto the beginning of the mouth. Also three hundred and ninety hairs are found in each lock . . .

Could this really be a description of God – or even a god? There were chapter headings such as: *Concerning the moisture, or Dew of the Brain, of the Ancient One*, and intimate details such as: *The length of the penis is 248 worlds*. Further chapters described the skull, the hair, the forehead, the eyes, the nose, the thirteen parts of the beard, and many other anatomical details. What could this possibly have to do with religion, or, for that matter, magic?

It seemed that the Ancient of Days did not speak, neither did it move of its own accord. It was seated upon a 'throne', but from time to time it was moved to another throne and the old one was demolished. Furthermore, the texts state that the Ancient of Days provided the manna which fed the Israelites in the desert, and hint that it came from the penis. This detail is so intimate that the Victorian author Mathers was forced to leave it in Latin: here it is, with a translation:

(LHA 740) Afterwards is his body extended into two thighs,
et intra haec continentur duo renes, duo testiculi masculini.
and between them there are two kidneys, two testicles.

Omne enim oleum, et dignitas, et vis masculi e toto
All the oil, and greatness, and masculine force from the whole

corpore in istis congregatur; nam omnes exercitus, qui prodeunt

body is gathered in them; for all the forces that go out
ab iis, omnes prodeunt et morantur in orificio membri genitalis.

from them, all go out and they all stay in the mouth of the penis.

... Membrum masculi est extremitas totius corporis, et vocatur

... The penis is the end of the whole body, and it is called Yesod, fundamentum, et hic est gradus ille qui mitigat
'Yesod', the foundation, and it is the step which sweetens
feminam.

the female.

There are some strange things to be found in the world's religions, but this was the oddest either of us had encountered yet. Here was this book, said to be a translation of very ancient writings, which confirmed that the wandering Israelites had received daily supplies of manna, but that rather than falling miraculously from the sky, it had been produced even more miraculously by something called the Ancient of Days. It was then that the terrifying, yet strangely exciting, possibility occurred to us – could it be that we had stumbled upon a description of a machine? Of course, many of the parts of it were given names corresponding to parts of the human body, such as those quoted above. But then, we reasoned, if the Israelites had acquired such a machine from somewhere, they would have had to have invented names for the various parts. There can be no word in ancient Hebrew for 'manna discharge nozzle'; however, if the manna ran down through the body before being discharged, the nozzle must have been located low down, and therefore, having regard to its position and function, 'penis' would be a natural choice of name for it.

Our next thought was: could it all be an elaborate hoax? Surely nobody in his right senses would write a book like this. So our next move was to check up on the book, *The Kabbalah*

Unveiled, and its author, S. L. MacGregor Mathers. The book was first published in 1887, and has been in print ever since. We had no difficulty in buying copies from local bookshops. If a book has been available to the public for nearly a century there must be a steady sale for it. Who, then, has been buying it, and why had nobody else done what we had done, identify its text as a description of a manna-machine? Was it all in our imaginations? The answer soon became clear. The people who bought the book were mystics, astrologers, witches, black magicians and the like, who used it in their rituals. Such people are not normally mechanically-minded, and it would never have occurred to them to analyse the material in the book in the way we had done, bearing in mind that such analysis would hardly suit their purpose. Engineers, who spend a lot of time both reading and writing descriptions of machines of various kinds, could naturally be expected to identify a machine-description in the dark at a hundred paces. The hunt was on, and we would not rest until our curiosity was satisfied, and we had got to the bottom of the whole matter.

We investigated Samuel Liddell MacGregor Mathers, translator of the book, and found that he was an eccentric figure who flourished in the latter part of the nineteenth century. He founded a magical society called the Hermetic Order of the Golden Dawn, and many well-known people of the time became members. At that time, dabbling in magic was fashionable, and the Golden Dawn soon had branches not only in London but also in other parts of Britain. New members were accepted as novices, and after various rituals and initiation rites they could become promoted to higher grades. The society had much in common with Freemasonry, Rosicrucianism, and H. P. Blavatsky's cult of Theosophy. These are all secret or semi-secret societies which enable their members to enjoy the feeling of belonging to an élite group. Mathers was chiefly responsible for devising the rituals of the Golden Dawn, for he was an efficient organizer with a well-developed sense of the mysterious.

He also produced a number of translations of early occult works, among them *The Kabbalah Unveiled*, no doubt to provide the material for his magical rituals. He adopted the name MacGregor as his 'true ancestral name', for he said that

his family had been MacGregors until the outlawing of that Scottish clan in 1603; but according to modern researchers, his family connections extended no further north than Bedford, England. He also claimed that he had inherited the Franco-Scottish title 'Comte MacGregor de Glenstrae' from his great-great-grandfather – a title which he doubtless put to good use later when he went to live in Paris.

A young man called Aleister Crowley joined the Golden Dawn, and quickly rose through the ranks. Later, he was to become notorious as a satanist, glorying in the title 'The Great Beast'. The London of the 1920s was shocked at revelations of his activities – rituals involving black magic, drugs, every conceivable form of sexual perversion, and even, some said, human sacrifice. At first, Crowley admired Mathers, even taking the name MacGregor out of respect for him. Later, a fierce rivalry developed between them, and Crowley is said to have invoked Beelzebub with forty-nine attendant demons and sent them to attack Mathers. Whether or not the troupe arrived is not known.

Mathers died destitute in Paris in 1918 – some say from a curse laid upon him by Crowley. Others say he died in the virulent influenza epidemic of that year. Crowley lasted until after World War II, finally expiring, riddled with drugs, at an English seaside resort.

Mathers, then, was the author of this book which we found so interesting. From the picture we have painted of him, no-one could say that he was a reliable authority. However, his book was not a direct translation of an ancient Kabbalistic text, but a translation of an earlier work by one Christian Knorr von Rosenroth: *Kabbala Denudata*, published at Frankfurt in 1677. So, the next stage of our quest took us to the Cambridge University Library to look for it.

We located a copy with little difficulty, filled in a request slip, and waited in the hushed and expectant silence of the Rare Books Room. *Kabbala Denudata* came in two impressive volumes, bound in heavy-duty leather. The book was mostly in Latin, but we knew enough of that language to establish very soon that all the material about the Ancient of Days was there. Mathers' translation may not have been completely accurate, but nobody could accuse him of having

made it up. It was all to be found in this much earlier book. However, it seemed that the Latin version in *Kabbala Denudata* was in fact a translation from yet another language, Aramaic, so that what we had been reading in Mathers had been through two translations. Knorr von Rosenroth, author of *Kabbala Denudata*, had copied the Aramaic from a much earlier work, the *Zohar*, and had helpfully reprinted the Aramaic text in parallel with his Latin. So we turned the thick, crackling pages of that 300-year-old book, looking first at the Latin text – which we could read – and then at the square, black Hebrew characters of the Aramaic – which we could not.

There was only one thing for it. The hunt was in full cry. We could not rest until the ghost of the Ancient of Days had been laid. If we claimed that we had discovered evidence of a manna-machine, based on Mathers' book, nobody would believe us. Knorr von Rosenroth was also a magician, and his translation might be no more reliable. We would have to go back to the Aramaic of the *Zohar*.

Let us summarize the position. We had discovered a book in English, which contained a description of a being called the Ancient of Days. This being, according to the book, provided the manna which fed the Israelites in the desert. This we found scarcely believable, but nevertheless the way in which the book was written persuaded us that we might be on to something. So we checked, and found that this book, published in 1887, was a translation of one published in 1677. The 1677 book was, in turn, a translation of an even earlier one, the *Zohar*, which was first printed in 1559. We were moving back through the centuries at a dizzying rate. The next step was to check up on the *Zohar*.

Cambridge University Library possesses several versions of the *Zohar*, which turned out to be a large work, divided into 'books' as is the Bible. We were interested in three of these: the *Book of Concealed Mystery*, the *Greater Holy Assembly*, and the *Lesser Holy Assembly*.

We found Sperling and Simon's translation into English which was very interesting but was incomplete, in that it omitted the three books describing the Ancient of Days.

The other, a translation into French by Jean de Pauly, was complete. Riffing through the pages of the six green-bound volumes, we soon found some references to the 'Ancien des Temps'. This does not mean 'Ancient of Days', but 'Ancient of Times' – or, for that matter, of the weather. So, there were differences of opinion among the translators, even as to how the title should be translated. Comparing the French with Mathers' English, it soon became very clear that there were even greater differences, and in some places it was very difficult to tell which passages in one language corresponded to which in the other.

At this point we should mention that one of us [GTS] once worked as a technical translator from French, German, Serbo-Croat, and Russian into English, and has smatterings of other languages. We both have the Latin which was necessary to enter Cambridge University in our day.

In technical translation work, it is most important that any particular word in one language should always be translated into the same word in the other. The translation must be word-for-word, as far as possible, if the information is to get across. The result of this style of translation is not always easy to read, but that does not matter. If, for example, one is translating into English a Russian paper on argon-arc welding of aluminium alloys, the finished result may not seem satisfactory to the translator, and he might be tempted to make a few changes. But as soon as his work is read by an English-speaking expert on argon-arc welding of aluminium alloys, those changes will at once be spotted and corrected. So a technical translator should be little more than a walking dictionary for turning one language into another, letting the experts worry about the meaning.

Comparing the French and English versions of the *Zohar*, it soon became obvious that this rule does not seem to apply in religious or magical translation work. The translators have much greater freedom. Here, some parts of the texts had been left out altogether, and for others they seemed to have written the first thing that came into their heads. It became even more obvious that a fresh attack on the original Aramaic could alone provide the answer. For, if we were correct, these passages describing the Ancient of Days were not religious,

but technical. They were describing a machine, not a god. A technical translation according to the proper rules would be necessary.

While these thoughts were running through our heads, we ourselves were running through the corridors of the Library, finding out more about the *Zohar*. We soon discovered that the leading authority on Jewish mysticism was Gershom Scholem, of the Hebrew University at Jerusalem. From his book *Major Trends in Jewish Mysticism* we discovered that the *Zohar* was considered to be an extremely important work, written from traditions handed down orally from the time of the Exodus. Furthermore, the parts of it which describe the Ancient of Days were said to have been the first to have been written, and the core of the whole work. At last, we had a breakthrough. We had chased the Ancient of Days from a disreputable English eccentric magician to an obscure German kabbalist. From him, the trail led back to a book, the *Zohar*; and the *Zohar*, according to the highly-respected Scholem, was at one time considered the most important Jewish religious book after the Bible itself and the *Talmud*. The further back we went, it seemed, the higher was the status of the Ancient of Days. What, we wondered, would have been its position at the time of the Exodus, about -1300, if we could go back that far?

The *Zohar* and its origins

The *Zohar* first appeared in about 1290, when it was published by a Spanish Jew, Moses bar Shem Tov of Leon. Argument rages among the scholars as to whether Moses of Leon wrote the whole thing himself, or whether he copied it from an earlier source. Though we shall never know the full truth, it is probable that he did compose most of it himself, but his composition was based on ancient traditions to which he had access. His own story is that he came into possession of an old manuscript, which had been found in a cave in Palestine. This manuscript, he said, contained the teachings of a well-known Rabbi, Simon bar Yochai, who lived in about +200. Moses of Leon claimed to have edited the manuscript, and to be publishing it for the first time. In the days before the invention of printing, publication was a difficult business. It was necessary to hire professional scribes, who wrote out copies of the book by hand while a reader dictated to them. Impecunious scholars, who could not afford to buy a proper copy, could come along and write out their own for a fee. Getting adequate publicity for a book must have been very difficult indeed, and sometimes years would go by before it became sufficiently well known to become a best seller. In spite of all these difficulties, the *Zohar* was an immediate success. Hand-written copies circulated widely until the invention of printing, and many of them still exist. The book

was first printed simultaneously at Mantua and at Cremona in Italy, in 1559, and editions have been produced every few years from then until the present time.

Occasionally, visiting scholars would ask Moses of Leon to be allowed to see the original manuscript, but they were told that it had disappeared in mysterious circumstances. However, after Moses' death, his wife admitted that there had been no manuscript; he had invented the whole story as a device to gain publicity for the book. Nobody, he had reasoned, would buy a book by Moses of Leon, a completely unknown person; but if the book was by the well-known Simon bar Yochai, then they would be queueing up for copies. In fact, this is what happened, and Moses, who had been hard up before the *Zohar* came out, left his widow well provided for.

This may seem like sharp practice today, but in the Middle Ages it was a recognized procedure, known as pseudography. For, at that time, a great deal of traditional Jewish lore was being written down and published. The name of the person who published it was not important; in fact, it was considered dishonest to put one's name on a book, if one had received the whole text word-for-word from one's grandfather. If he in turn had got it from *his* grandfather, who in truth could say who the real author was? All that could be done was to put the name of some historical figure on it. Moreover, in the time of Moses of Leon, it was customary to attribute works to well-known historical figures, both as a mark of respect, and to arouse readers' interests.

It is clear from the *Zohar* that Moses of Leon must have been a member of a society known as the Reapers of the Holy Field. There were many such societies, whose purpose was to pass on the secret, traditional knowledge of the Jews, the Oral Law, which was said to have been given by the Lord to Moses on the mountain. Throughout their history, the Jews have been persecuted mercilessly, and their oppressors have made every possible effort to stamp out their culture. Before printing, books could only be produced in limited numbers, and it was possible for a determined enemy to locate and destroy every copy of a particular work. Therefore, knowledge was much safer stored in men's heads than written

down in books; you can tell what is in a book by reading it – it is not so easy to tell what is in a man's head. Therefore it is probable that Moses of Leon was a walking encyclopaedia for many years, before financial need compelled him to write down and publish his accumulated store of knowledge. And probably not even he himself knew where it came from originally.

On this point, scholars agree; some parts of the *Zohar*, including our Ancient of Days texts, are acknowledged to come from the remotest antiquity. So we have traced that mysterious being back from the nineteenth to the seventeenth century, back through the invention of printing to the thirteenth century, to a point where it disappears from paper altogether, into a succession of men's heads.

For how long can an unwritten tradition be preserved? If we are correct, the Ancient of Days disappeared in about –600, and the information must have been preserved orally for some 1,800 years, or say sixty generations. There is a children's game in which a message is whispered from one to another around in a circle. Usually, after some twenty repetitions, the message is so garbled as to be unrecognizable. However, the preservation of these traditions was not a children's game; it was a very serious business, carried out by responsible adults, men who believed that the ancient knowledge they were preserving was the innermost, holiest secret lore of their faith. They also believed that if it was correctly memorized they would go to heaven; surely then, they must have made every effort to learn it accurately, and to ensure that their children did also. Under these conditions, it is quite possible that the information survived in recognizable form for sixty generations, and that what we read in the *Zohar* is not very different from the holy secrets of the pre-Christian era.

(LHA 59) Three heads are hollowed out; this inside that, and this above the other. One head is the wisdom; it is the most concealed of that part which is covered.

What can this have meant to those men of old who whispered it down through the ages, from father to son? Not much perhaps; but it was the secret lore, which it was their solemn

duty to preserve. We are grateful to them for their dedicated efforts; they did not labour in vain, because today we can understand the secret traditions and interpret them.

We established that the details of the Ancient of Days given in the *Zohar* came from the earliest time of Jewish history, and that they were believed to be holy secrets, to be preserved at all costs. If this is so, then it had to be worth our while to study them in the original language, particularly as we had discovered that the translations we had were unreliable. It was time to get to grips with Aramaic.

Aramaic, also known as Chaldaic, is the language of Ancient Babylon, and the Jews took to speaking it after the captivity in that city, about the year -590. From then on, Hebrew declined as a spoken language, to die out at about the time of Jesus, who was an Aramaic-speaker. However, Hebrew continued as a written language until the present time, when a modernized version was devised for use as the official language of the state of Israel. Aramaic is similar to Hebrew, and is written using the same characters. However, it in its turn has almost completely died out as a spoken language, but a number of important books in it have survived. The *Talmud* is written in Aramaic, and there are also Aramaic translations of the Hebrew Bible (Targumim).

When Moses of Leon sat down to write the *Zohar*, he had to do it in Aramaic. He was claiming that it was a transcript of an ancient manuscript which he had acquired, so he had to use the language of a much earlier period. Moses had obviously read books in Aramaic, but he was not very good at writing in the language. Curiously enough, this made it much easier for us when we sat down to translate his book into English, because his lack of language ability had forced him to write very simply and clearly. He had learnt the ancient traditions in Ladino, a Spanish-type language spoken by the Jews of Spain and Portugal, and had to translate them; as a result, there are many Spanish words in the text, and some from other languages as well. Privately, we called his language 'Zoharese'.

There were also a number of made-up words, whose meaning can only be guessed at - nevertheless there are very few places where the text is not completely clear. Fortunately,

Moses followed the rules of technical translation we mentioned in our previous chapter to the best of his ability, as we found from the consistency of the texts.

Aramaic turned out to be a very simple language, and its grammar is much easier than that of Latin, Greek, or Russian, perhaps even simpler than that of German. As we have said, our task of translation was made still easier by the author's sparse vocabulary, and we had the excellent dictionary of Jastrow, which was not available to earlier translators. It was not long before we could read fluently both in the square letters and in the Rashi script, which is particularly legible when printed small. As the sheets of completed translation piled up, the work got easier and easier; we became fascinated by what we were discovering, and would work late into the night, the clock forgotten. The Aramaic was like an ancient, dried-up chrysalis; what came out of it was a brilliant butterfly, clear in every detail. If we used the ordinary meanings of the words, not the theological ones, we had a beautifully precise account of this being, the Ancient of Days, in all its physical details. As the butterfly spread its wings, we saw that we had an engineering description which we could understand. We reasoned that this was why the theologians say that these parts of the *Zohar* are 'most difficult'; of course they are difficult to theologians, because they are not about theology, but about engineering. They are incomprehensible only if a theological meaning is forced on to them, and this is why the Mathers translation appears to be nonsense in places. For example, in the *Book of Concealed Mystery*, chapter 1, verse 25, Mathers has:

But there are excavations of excavations. (The excavation is the receptacle, like that which is hollowed out, or carved out, like a cave, or any other receptacle. Therefore all receptacles are inferior with respect to the superiors, among which the 'shells' hold the last place, which here are described, which are) under the form of a vast serpent extending this way and that. (Concerning this serpent the author of the 'Royal Valley' speaks thus in his 'Treatise of the Shells'. The fragments of the receptacles, which have fallen into the world of Creation, or Formation, and of

Action, therein exist from the Outer; and judgements are more consonant to these, which are called profane, and have their habitation in the middle space between the Holy and the Unclean. And from the head is formed that great dragon which is in the sea, and is the sea serpent, which is, however, not so harmful as the earthly one. And this dragon hath been castrated since his crest (or *membrum genitale*) together with his mate, have been repressed, and thence have been formed four hundred desirable worlds. And this dragon hath in his head a nostril (after the manner of whales) in order that he may receive influence, and in himself he containeth all other dragons, concerning which it is said: 'Thou hast broken the heads of the dragons upon the waters' (Ps LXXIV:13). And here the universal form of all the shells is understood, which encompasseth the seven inferior emanations of the queen after the manner of a serpent, as well from the right as from the left and from every side).

The above is Knorr von Rosenroth's 1677 translation of the Aramaic into Latin, plus his comments, as translated into English by Mathers. As if this was not enough, Mathers then adds his own explanation as follows:

(The excavation or receptacle of a Sephira is that quality whereby it receives the supernal influence from that which immediately precedes it; hence each Sephira has a double quality of receiving and transmitting, which passes through the four worlds, in each of which the Sephiroth exist, though in gradually decreasing light. (See Table subjoined). The shells, *Qlipoth*, are the demons, in whom again is a form of the Sephiroth, distorted and averse. This great dragon which is here described is evidently identical with the leviathan of Job. He is the executor of judgement, the centripetal forces, the old serpent even seeking to penetrate into Paradise; finally, in a more *exoteric* [sic] sense, he is Satan and the devil, the accusing one. In the Sepher Yetzirah, a most important qabalistical book, he is called *Theli*, ThLI, the dragon. Now by Gematria, ThLI = 400 + 30 + 10 = 440; and if we 'repress his crest' - i.e., take away

Which means roughly:

Hollows of hollows, like the form of a long snake. And they are extended this way and that way.

Why is it that these translators find it necessary to turn eight words of Aramaic into several hundred words of English? It can only mean that something is wrong somewhere. The Aramaic is unmistakably a description of a physical structure, some real object, which is shaped in a certain way. It is an engineering description of something. However, magicians and theologians do not like physical structures, so they try to conceal the true meaning under a pile of mystical nonsense, which has no connection at all with the original.

An example of mistranslation is to be found in GHA 39. The Aramaic text is corrupt, but it means, if anything:

The Lords of whiteness he covers in redness; and there appears the lantern of his face.

For this Mathers has:

White are his garments, and his appearance is the likeness of a Face vast and terrible.

Obviously, if the translators could not make sense of a passage, they just invented something to suit their purpose. In fact the Ancient of Days did have a 'Face vast and terrible', one which sent people unused to the sight of it running in blind panic from the Holy of Holies; but this is no excuse for so vast and terrible a mistranslation.

As we have said, the texts describing the Ancient of Days are to be found in three sections of the *Zohar*, known as the *Greater Holy Assembly* (GHA), the *Lesser Holy Assembly* (LHA), and the *Book of the Mystery* (BoM). Mathers calls this last the *Book of Concealed Mystery*, but our translation is more accurate. GHA is an account of a series of lectures given by the main character of the *Zohar*, Rabbi Simon bar Yochai, to a group of his disciples, one of whom is writing it all down. First of all he impresses on them the importance of what he is

going to tell them, and then he discloses some of the details of the Ancient of Days. In LHA, he is on his death-bed, and he summons the survivors of the first course of lectures to give them a few more details he has remembered. BoM is a very short book, containing most of the material of the *Holy Assemblies* in the form of brief notes. These three books make up only about 3.3 per cent of the total text of the *Zohar*, but they are very different from the remainder of the work.

In the rest of the *Zohar*, Rabbi Simon is following the usual pattern of Jewish theological argument, discussing each verse of the Bible and its possible interpretations at great length. There is much talk of morality, good and evil, and the usual theological subjects. But in our three books, there is nothing at all of that – they are totally concerned with physical facts, details of the anatomy of the Ancient of Days. For example, we mentioned the beard of the Ancient of Days. So we read:

(GHA 838) Tradition: these beard hairs are strong, and different from the other hairs, those of the head, because they are separately divided, and they are found, and they are strong in their paths.

Now, we said at the beginning of Chapter 1 that some people assume that the title 'Ancient of Days' refers to God. But if the Ancient of Days is identical with God, how could physical details such as these become known? In any case, the Jews believe that God has no physical existence, and that He pervades the whole Universe. Clearly, the Ancient of Days and God are quite different – and in fact the texts very seldom confuse them. Where God is mentioned, he is given the usual Jewish title of: 'The Holy One – blessed be He!'

In the *Zohar*, the text is continuous with occasional headings in large letters. However, both Knorr von Rosenroth and Mathers break it up into verses, which is very convenient for reference. We shall therefore give the verse numbers for the benefit of those who might wish to compare our translation with others.

The ancient texts

In the previous chapter, we devoted considerable space to showing that our source material dates from very early times, and that it was once thought to be of great importance. This was necessary because the material is so incredible, so staggeringly different from any normal religious writing, that unless we did this first, nobody could believe that it was not some monstrous joke. Even we ourselves had reservations, until we could read Aramaic and saw it printed in the 1559 Cremona *Zohar*, and later deciphered the same words in still earlier manuscripts. The Ancient of Days texts are something of an embarrassment to modern religious authorities. The *Encyclopaedia Judaica*, which is a goldmine of information on anything Jewish, has a short article on the Ancient of Days – but makes no mention at all of these texts of the *Zohar*. The *Zohar* itself merits an article of some eleven pages, but here there is no mention of the Ancient of Days. We feel that this omission must surely be deliberate.

When we were sure of our findings, and had at last got to the bottom of this ancient enigma, the terrifying implications of our discoveries came home to us. Ought we to leave well alone, and let the world go its way in blissful ignorance? On the other hand, our scientific training had taught us that the search for truth was all-important, and that no good came of concealing it.

While some Jews may find this book distasteful, others may consider that it consolidates the view that their ancient faith is based on fact, not myth; that the Lord existed, even if he was not identical with God Himself; and that the Lord will come again, with all the mighty powers described in the Bible, in the hour of Israel's greatest need.

So we were tempted to lock away our books and typescripts, but then, we reasoned, should we not give the world a chance to examine our findings? If they are proven, we can prepare ourselves for the Second Coming.

After all, is it really so bad? The Lord gave the Law to the Jews. A Jew called Jesus founded Christianity. These facts are in no way shaken by our describing a machine which the Lord gave to the Jews at the same time as he gave them the Law.

In our view, proof of the visits of IHVH merely helps to restore faith in the accuracy of the Bible.

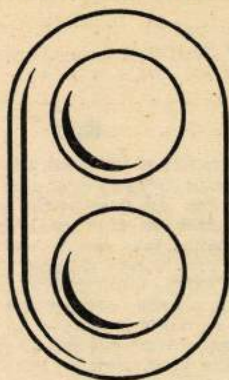
As described in the texts, the Ancient of Days is a complicated physical structure. Some people think that it may have been an intricately-carved idol, captured from a non-Jewish people, which was kept secret because the Jews did not allow idol worship; others dismiss the whole thing as a fanciful invention. We shall endeavour to show that it is neither of these.

The basic structure is of three 'heads' or 'skulls':

(LHA 59) Three heads are hollowed out; this inside that, and this above the other. One head is the wisdom; it is the most concealed . . . this wisdom is concealed; it is the uppermost of all the other wisdoms.

(LHA 175) There are 3 upper heads; two heads, and one that contains them . . .

Putting these two quotations together, we can deduce that the arrangement is as shown in Figure 3.2. The heads are hollow, and the two are arranged inside the third, one above the other. The upper of the two inner ones is called the 'wisdom'. From it, there comes a white material.



3.2 The three skulls

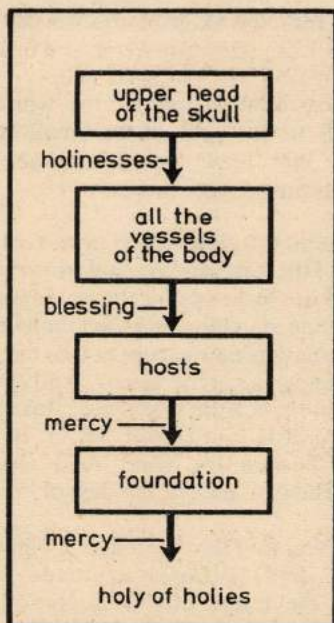
(GHA 56) And from this skull the whiteness goes out in one direction to the skull of the Small-faced One . . . and from this one, it goes to the remaining lower skulls, of which there is no counting.

So, whatever the 'whiteness' is, it starts off in the top skull, and runs down through a number of others. We should explain here that the Ancient of Days comprises two main units, the Small-faced One and the Ancient One (*or* Large-faced One). Their functions will emerge in due course. Mathers calls them *microprosopus* and *macroprosopus*, from the Greek – obviously names chosen to give a more mystical flavour.

What is the purpose of all this? Right at the end of LHA, Rabbi Simon is on his death-bed, and he uses his last breaths to give a summary of the secret knowledge:

(LHA 759) And all of them (the holinesses) come from the upper head of the skull . . . from the direction of the upper brains . . . and this blessing flows into all the vessels of the body, until it reaches those that are called the 'hosts' . . . And that flow, after it is collected there, it stays there, and then goes to that holy foundation. It is all white, and therefore it is called 'mercy'. And this mercy enters the Holy

of Holies, as it is written (Ps 133:3): 'For there the Lord commanded the blessing, even unto life for evermore'.



3.3 Flow diagram based on LHA 759

This quotation obviously refers to the same process. It seems that the white material from the upper 'head' is also called 'blessing' or 'mercy'. It flows down through the body until it reaches some lower vessels known as 'hosts', and from there it goes via the 'foundation' to the Holy of Holies. We shall see in due course what the 'hosts' and the 'foundation' are. This could be a description of a religious vision, but to us it is more suggestive of an industrial process. A material starts at the top of something, runs down through various vessels, and is then discharged. Whatever it is, this description is certainly a very odd thing to find in a book which is supposed to be about religion.

Turning the pages of the *Zohar*, we find yet another description of this process:

(LHA 436) Into the skull of the Small-faced One there drips the dew from the white head, and it is contained in it.

GHA 56, quoted above, stated that the 'whiteness' went from the upper 'skull' to the 'skull of the Small-faced One'. From this, it seems that 'dew' is yet another name for this 'whiteness'. This passage continues:

(LHA 437) And this dew is seen in two colours; and by it is fed the field of the holy apples. And from this dew they grind the manna of the just ones for the world to come. And by it the dead are raised to life. And the manna did not appear to be derived from this dew except at one time; the time when Israel was wandering in the desert. And (then) the Ancient one of All fed them from this place. But afterwards, it was not found. As it is said (Exod. 16:4) 'Behold, I will rain bread from heaven for you.' And also (Gen. 27:28) 'Therefore God give thee of the dew of heaven, etc'.

From this, it is clear that the 'whiteness', 'blessing' or 'mercy' is also called 'dew', and that from it was made the manna that fed the Israelites in the desert. Biblical quotations are included in the *Zohar* text which make it absolutely clear that this is what is meant, for 'bread from heaven' and 'dew of heaven' are terms used in the Bible to mean manna.

According to the Bible, this mysterious food was associated with dew – but until now, it was believed that it was ordinary dew, the small drops of water which appear on grassy fields in the mornings. Reading the *Zohar* carefully leads us to believe that it is suggesting that the manna did not come from ordinary dew on the ground, but from a special dew which condensed in the upper skull of the Ancient of Days:

(GHA 44) And from this skull, there distils the dew, on the outside part (of the skull), and it fills his head every day. Of which (dew) it is written: (Cant. 5:2) 'My head is filled with dew'. It does not say 'it is full', but 'it is filled'.

In other words, the head was not just kept full, but it was filled every day. It must, therefore, have been emptied every day as well. The text goes on to repeat what we discovered earlier:

(GHA 48) And by that dew are supported the holy ones above. And it is the manna that is ground for just men in the world to come. And that dew is put on to the field of holy apples.

Since the Lord and his angels provided the manna-machine, the ancients were clearly correct in their view that manna was the food of the angels in heaven. However, it was believed that the angels ground heavenly flour in much the same way as earthly wheat is prepared for baking. These texts, however, say that the manna started as dew, which falls to the 'field of holy apples'.

The people who preserved these ancient secrets called themselves the Reapers of the Holy Field. This seems an odd choice of name – but, if manna was a food, and it went down to the 'field of holy apples', somebody must have collected it. Reapers are people who harvest a crop; so the 'Reapers of the Holy Field' must have been those who collected the manna from the 'Holy Field'.

Now, according to the Bible, manna was a 'bread from heaven' which fell on to the ground each morning with the morning dew. The people then collected it.

Here we have another book, the *Zohar*, which claims to be revealing the secret lore of Israel which was given only to a chosen few. The *Zohar* tells us a different story – that the manna was made from a dew which distilled in the upper skull of the being called the Ancient of Days, which ran down through its body, and which was discharged into the Holy of Holies, or on to the field of holy apples. The manna was also called 'blessing' or 'mercy'. Perhaps the *Zohar* is right, and the Bible is not telling us the full story. Perhaps there was a being called the Ancient of Days, an object with a number of skulls; and the manna did not fall from the sky, but came from this being. How can we cross-check on this? One way is to see what the Bible has to say about mercy.

The word 'mercy' occurs very frequently in the Bible. Two

Hebrew words are used, ChSD (chesed) and RChM (rechem). Both Jews and Christians spend a lot of time praying for 'mercy' – but do they know what they are praying for? To modern religious people, mercy means God's forgiveness for their sins – but did the word have the same meaning in ancient times? Looking in the Hebrew dictionary, we find that the word chesed properly means 'charity', in the sense of something given free of payment, and can also mean 'white'. The word rechem means love, pity, or compassion. Neither of these words has the meaning 'forgiveness'; the usual Hebrew word for this is nasha. So, when the people pray for 'mercy', they may think they are praying for forgiveness; but according to the dictionary, they are in fact either asking for something for nothing (chesed), or else they are asking God to have pity on them (rechem).

If the staple diet of the Israelites for forty years was manna, then the manna supply must have been of the utmost importance to them. If there was no manna next morning, they would go hungry; so they probably tried to help matters by praying for it. What word did they use for manna?

According to the Bible, the word manna comes from man hu, meaning 'what is it?' This is what the Israelites are supposed to have said when they first found it. Modern scholars have suggested that it may come from manan hu, meaning 'it is a portion', because the manna was doled out in portions. Now, would either of these words have been suitable for use in prayer? It would not seem right to pray:

Give us, O Lord, our what-is-it?

or:

Give us, O Lord, our it-is-a-portion.

Some other words must have been used. Examining the words suggested by the *Zohar*, chesed (charity) seems perfectly suitable. The Israelites did not have to pay for their manna – the Bible would surely have mentioned it if they did. So:

Give us, O Lord, of thy charity

would be an acceptable prayer to offer up. Likewise, they could pray for *rechem*, compassion, asking the Lord to have pity on their starving condition. Certainly, even today Jewish rituals are full of prayers for *chesed* and *rechem*, and Christian services always include the words:

Lord, have mercy upon us.

Jesus was a Jew, and many of the rituals of Christianity derive from Jewish practices. The Christian Communion, for example, is based on the Last Supper (Matt. 26:26ff). Some say that, on that occasion, Jesus was re-enacting the manna distribution ritual. At communion, after prayers to the 'Lord of Hosts' for 'Mercy', the people line up before the altar, at which priests are performing their holy mysteries. In due course, they each receive their ration of 'Bread of Heaven', which they are told is the body of their God. The Lord's Prayer is based on a Jewish prayer, and it includes a request for the 'daily bread'. Why 'daily'? Could it be because the prayer was originally for manna, which was distributed daily, first thing in the morning? In both Jewish and Christian services, there are very many occasions on which the people pray for mercy. Is this because they were exceptionally sinful, and needed to be forgiven every day? Or is it because without their daily ration of 'mercy', or 'bread of heaven' they would starve?

There is a curious phrase which occurs a number of times in the Bible. In the King James English translation, it is usually given as 'to shew mercy'. The Hebrew is '*asseh chesed*', which in fact means 'to make (*or* manufacture) mercy'. Exod. 20:6 says literally: 'Making mercy for thousands (*or* for families)'. This supports the view that mercy is a product, and not merely the forgiveness of God.

Returning to the *Zohar*, we find a very remarkable discussion of mercy, given by Rabbi Yisa, one of Rabbi Simon's pupils:

(GHA 398) There is internal mercy and external mercy. Internal mercy is what they call that of the Ancient of Days, and it is concealed in the part of the beard which is called 'the corner of the beard'. And no man should spoil his

beard because of the internal mercy of the Ancient of Days . . . Why is that? So as not to spoil the paths of mercy of the Ancient One. . . . The tradition in the *Book of the Mystery* is that it is necessary for mercy to be increased, and to build up, and it should not run short or be cut off from the world. . . . And this is . . . the mercy of the Ancient of Days. And about the permanent mercy; the mercy that is called permanent mercy is that other (mercy), that of the Small-faced One, of which it is written: (Ps 89:2) 'For I have said, mercy shall be built up for ever'. However, the mercy of the Ancient of Days is the true mercy. And this . . . is not for the life of the body, but only for the life of the soul.

Here, Rabbi Yisa is talking about mercy as if it were a mere commodity, a physical substance. There are two types of mercy, the internal, and the external or permanent mercy. The internal mercy is found in a certain part of the beard of the Ancient of Days, and the permanent mercy comes from the Small-faced One. The internal mercy is for the nourishment of the soul (the works of the Ancient of Days?); the permanent mercy, then, is for the 'nourishment of the body'. Here again is the suggestion that mercy is in fact a food.

What is more, not only Rabbi Yisa but also Psalm 89 tells us that 'mercy should be built up for ever'. If mercy is the forgiveness of God, is it possible to stockpile it? Could one build up a credit balance at the Bank of Heaven, and then go out for a night on the town, committing as many sins as one liked with a clear conscience? This is an absurd suggestion. But if mercy is a food, then there is every reason why stocks should be built up, and the whole passage makes sense.

There are many places in the Bible, particularly in the Psalms, where the word mercy is used in a way which suggests to us that it is some kind of food, which was necessary to preserve life. For example:

(Ps 79:8) Let thy tender-mercies (rechemim) speedily prevent (or succour) us; for we are brought very low.

(Ps 119:77) Let thy tender-mercies come unto me that I may live . . .

and

(Ps 40:10ff) . . . I have not concealed thy mercy and thy truth from the great congregation. Withhold not thou thy tender-mercies from me, O Lord; let thy mercy and thy truth continually preserve me.

Furthermore, the Bible states that the manna issue took place early in the morning – and we find in the Bible that ‘mercy’, too, was available at that time of day:

(Ps 90:14) Satisfy (sova’) us early [*literally* in the morning] with thy mercy.

The word sova’ is used particularly of satisfaction of hunger with food. There is also:

(Hos. 6:4) For your mercies are as a morning-cloud, and as the early dew they go away.

This quotation associates mercy with the dew, and also with the morning-cloud – a cloud of smoke which, we shall see, came from the Ancient of Days. The association of mercy with the morning, and with nourishment, is confirmed by the Book of Lamentations:

(Lam. 3:22) [Through] the Lord’s mercies we are not consumed [*or* exhausted], because his compassions [rechemim] fail not. They are new every morning; great is thy faithfulness.

Taking these quotations together, it seems more than probable that ‘mercy’ – rechem or chesed in Hebrew – was originally another name for manna. Later, this was forgotten, and the people thought it meant the forgiveness of God – but they went on using the old forms of words, the prayers which had been used in the desert when ‘mercy’ – or manna – was the only thing which stood between their ancestors and starvation.

According to the Bible, the manna supply failed when the people came out of the desert and entered the Promised Land:

(Josh. 5:9ff) And the Lord said unto Joshua, This day have I rolled away the reproach of Egypt from off you. Wherefore the name of the place is called Gilgal unto this day.

And the children of Israel encamped in Gilgal, and kept the passover on the fourteenth day of the month at even in the plains of Jericho.

And they did eat of the old corn of the land on the morrow after the passover, unleavened cakes, and parched corn in the selfsame day.

And the manna ceased on the morrow after they had eaten of the old corn of the land; neither had the children of Israel manna any more; but they did eat of the fruit of the land of Canaan that year.

Not surprisingly, there are many verses of the Bible which suggest that the 'mercies' were once plentiful, but later ceased:

(Ps 89:49) Where are thy former mercies?

(Ps 25:6) Remember, O Lord, thy tender-mercies [rechemim] and thy loving-kindnesses [chesedim] which [existed] in ancient times.

And:

(Ps 77:8) Is his mercy clean gone for ever?

Every verse of Psalm 136 ends with the words: 'For his mercy is [or was] for ever'. (Hebrew does not distinguish between past and present tenses, but between actions complete and incomplete.)

The *Zohar* suggests that 'mercy' is another name for manna, and we have traced its text back to 1290. We know that its origins are much earlier, but how far back we cannot tell, because there is no written document from before this date. However, we know that the Bible is a lot older; the Hebrew text was put into its present form in about -500. So, in the Bible, as shown above, we find plenty of confirmation for our thesis that 'mercy' and manna were once one and the same

thing; it was only later that the connection between them was forgotten by most people – but the Reapers of the Holy Field preserved it. They also treasured their traditions of the Ancient of Days, for they knew that the manna had not fallen from the sky, but had come from the penis of that terrifying being.

Suppose that the Ancient of Days was a machine – how did it come to have a penis, in addition to skulls, beards, noses, and numerous other organs which sound like parts of a human body? We have suggested that the Israelites had no names for machine parts, and therefore had to make them up. Perhaps they looked at their machine, and named the various parts after the parts of the body which they vaguely resembled. This seems quite possible, because we have an example of a modern people, who until recently had no contact with technology, who did precisely this. The Apache Indians are an intelligent people, but they had not seen a machine until the white man came. They soon learnt to drive motor cars, and became skilled mechanics, but they had no words in their language to describe the various parts. They were forced to invent names, and we are fortunate in having a list of some of them:

Apache words for parts of the human body and the automobile

External Anatomy	Human Anatomical Terms	Extended Auto Meanings
daw	chin and jaw	front bumper
wos	shoulder	front fender
gun	hand and arm	front wheel
kai	thigh and buttocks	rear fender
ze	mouth	gas-pipe opening
ke	foot	rear wheel
chun	back	chassis
inda	eye	headlight
Face		
chee	nose	hood
ta	forehead	auto top
Entrails		
tsaws	vein	electrical wiring
zik	liver	battery
pit	stomach	gas tank
chih	intestine	radiator hose
jih	heart	distributor
jisoleh	lung	radiator

This list is quoted from Peter Farb's most interesting book *Word Play*. It shows how the Apache Indians were faced with the same problem as the ancient Israelites – they had a machine, but no names for its parts. They had to invent names – and we believe that the Israelites used names of parts of the body, as did the Apache Indians. We have proof that the Apaches did this – and then we find that the secret lore of Israel describes what sounds like a machine, which has body part names as well.

It is interesting to contrast our texts with alchemical writings. In the latter, the language is often found to be more appropriate to poetry or mysticism than to an exact science; so much so that there is often an initial difficulty in recognizing an alchemical text for what it is. But alchemical texts were available to all who could read, and therefore had to be obscure. Our texts are quite clear – hence the need for secrecy until the compilers themselves had forgotten what it was all about.

As we continue with our analysis, we will find that the Ancient of Days, as described, corresponds very closely to the sort of machine we would build if we wanted to make a balanced foodstuff by a continuous process.

Can this be a coincidence? If the Ancient of Days was not a manna-machine, what was it?

Let us examine one of the terms used in the *Zohar* – the 'skulls'. The word used in the original is GVLGLThA (golgotha). Jesus was crucified at Golgotha, the place of the skull. What can these skulls have been? We know that they are hollow, because they are described as fitting one inside the other, and because they are containers for the 'whiteness' or 'dew'. The word comes from the Hebrew *gilgal*, meaning to turn or roll. Other words we find are: *galgala*, a wheel, globe, or sphere, and *galgaltha*, a ball or round stone. Obviously the word could be used for any spherical object. The human skull is nearly spherical and is hollow; so it is clear that these 'skulls' are merely hollow vessels for containing something, probably a fluid, because the texts describe it as flowing from one to the other.

Next, we can look at the title 'The Ancient of Days'. Is it just

another title of God, or is it something else? Certainly, the title as translated does not seem to mean much. In Aramaic, the title is 'attik yomin (OTHIQ IVMIN), and in Hebrew 'attik yomim (OTHIQ IMIM). The first word comes from the word 'attak (OTHQ), to remove or transport; it is used several times in the Bible, mostly with that meaning. The form 'attik would then mean 'transporting' or possibly 'that which is transported'. Why then do the translators give it as 'ancient'? The word *can* mean this, in the sense of 'transported (*or* far gone) in years', but this is in no way the normal meaning. The usual word for 'old' in Hebrew is *zaken*, which also means 'beard'. Another word is *yashesh*, and in Aramaic the term *sava* is used. It seems remarkable that the translators go out of their way to pick on an uncommon meaning of the word, when 'transportable' would appear to be more accurate. Admitted, the Ancient of Days had a large beard – as we shall see – but is it correct to associate this with great age?

Looking at the *Zohar* text again, we find no mention that the Ancient of Days ever moved of its own accord. Indeed:

(GHA 168) Whoever rides (the throne) has control over it, until he *is taken off* that throne and sits on another throne. The first throne is then cast down, so that no-one except the Ancient of Days should have the power to ride on it.

If no-one except the Ancient of Days could 'ride' the thrones, then it must have been the Ancient of Days who was taken off each throne – in other words, it was transported. So it appears that the title 'Ancient' could just as well be translated as 'transportable'. What were the thrones? They could not have been jewel-studded chairs, if they were demolished. They were probably simply platforms made of earth or wood.

The second word in the title is IVMIN or IMIM, supposed to mean '(of the) days'. Now the word IVM, pronounced *yom*, does mean 'day'; since 1973, everyone has heard of Yom Kippur, the Day of Atonement. But there is another word in Hebrew, IM, pronounced *yam*. This means 'sea'. In the plural, both words are spelt the same, IMIM. If pronounced 'yomim', this means days, and if 'yamim', seas. From this, we discover that OTHIQ IMIM can mean Ancient of Days, but it could

also mean Transportable One of the Seas, and we must therefore find out what might be meant by 'seas'.

In the Bible, there are various seas, and the word is also used for what we could call lakes such as the Sea of Galilee. There is also the Great Sea, *yam rav* in Hebrew, the name given to the Mediterranean, which was the largest body of water known to the ancient Israelites. *Yam rav* was also the 'great sea' of bronze which stood in front of Solomon's Temple (2 Chron. 4:2ff). This was a large vessel filled with water and used for purification rituals. It appears, therefore, that the word 'sea' in Hebrew can also mean 'a large vessel for containing liquids', or in modern terms, a tank.

We already found out from the *Zohar* that the Ancient of Days comprised a number of 'skulls', or vessels for containing fluids; it seems likely, then, that the title should be 'Transportable One of the Tanks', rather than Ancient of Days. What is more, this mistranslation must have taken place a long time ago, when the Israelites were still using Hebrew, not Aramaic, because the plurals of the words are written the same only in Hebrew. From two separate sources – the 'skulls' and the 'seas' – we have deduced the same answer, and our explanation is beginning to make sense of the ancient texts. We shall continue to use the title Ancient of Days in this book, for convenience, bearing in mind that it should really be, according to our interpretations, Transportable One of the Tanks.

The *Zohar* is not a book which is well known outside Jewish circles, but the translations of the Hebrew Bible are. Therefore it is worth looking at the mentions of the Ancient of Days in the Bible, in the book of Daniel:

(Dan. 7:9ff) I beheld till the thrones were cast down, and the Ancient of Days did sit, whose garment was white as snow, and the hair of his head was like pure wool: his throne was like the fiery flame, and his wheels as burning fire. A fiery stream issued and came forth from him . . . and behold, one like the son of man came with the clouds of heaven, and came to the Ancient of Days.

The Book of Daniel is fairly late compared with the other

books of the Bible, although it purports to come from an earlier time. It is written in Aramaic, not Hebrew. Daniel's Ancient of Days sounds very much like the being of the *Zohar* – we have already mentioned the casting down of the thrones, and in due course we shall explain the white garments, the hair like wool, and the fiery stream. We shall also make a suggestion as to who the 'one like the son of man' was. But what are these wheels? The word used in the Aramaic text of Daniel is GLGLVHI (galgalohi) – his wheels. However, in the *Zohar*, 'his skulls' is GVLGLVHI (golgalohi), and it sometimes appears without the first 'V', making it identical with the 'wheels' of Daniel. It seems fairly likely, then, that Daniel is talking about skulls, not wheels; and in describing his 'vision', he is hinting to those in the know that he possesses the secret knowledge.

In ancient times, 'visions' were a common way of letting it be known that you knew something without actually saying so. Let us suppose that in 1944, a wild-eyed prophet in tattered rags was wandering the streets of New York, describing his visions. He might say: 'Behold, I had a vision in the night, and I saw a small sphere of very heavy metal, and part of it was missing. The missing part was not with it, but kept at some distance from it. Then, the missing part came in unto the sphere, and the two fitted together. And there was a great fire and smoke, and a blinding brilliance, and the world was destroyed'. For months he might wander, proclaiming his message, and all who heard him would dismiss him as a wenge loony. But one day, someone who knew about these things would hear him, and very quickly the prophet would find himself surrounded by FBI men ten deep, to be hustled off to work on Project Manhattan. For he was proclaiming that he knew how to make an atomic bomb.

It was much the same with Daniel, for not long after he described his 'vision', he was put into a very responsible position. Likewise, the author of Daniel, who was not Daniel himself but some anonymous later writer, was proclaiming to his readers that he was one of those in the know, a member of the Reapers of the Holy Field.

So far, we have described some ancient texts, and told how we

traced them back to very early times. Now we have found many references to them in the Bible itself. Could it be that the *Zohar* material was compiled after the Bible came into its present form? It seems unlikely; the job of dovetailing in all the details would have been enormously complicated, and completely pointless. Why should anyone bother to invent such incredible material, which goes against the established teachings in so many ways? This material would not exist today unless there had been something – some very strange thing, known as the Ancient of Days. For centuries, the best theological minds have failed to find an explanation for it, because to them it makes no sense at all. In the 1882 Lublin *Zohar*, there are fifty-seven pages of closely-printed Aramaic describing the Ancient of Days, amounting to rather more when translated into modern languages, but this large body of material has been ignored by all, except eccentrics such as Mathers. The idea that the Ancient of Days was a collection of tanks, and that manna came out of it – who could believe such nonsense? Until the present century, no-one. But today, we can see that it *is* possible, and in the next chapter we shall put on our engineers' hats to show *how* it is possible.

Part Two

THE BIOCHEMISTRY

Principles of manna making

So far, we have looked at a very small proportion of the total material in the *Zohar* relating to the Ancient of Days. From it, we have discovered that the secret traditions stated that the manna of the Lord did not fall upon the ground, but that it emerged from the Ancient of Days, a mysterious being, terrible to behold, who resided in the Holy of Holies. It was seen by no-one except authorized priests, and was cloaked in the greatest secrecy. Instant death was the penalty for any outsider who penetrated its mysteries. Dispensing endless food, the Ancient of Days fed the people during the forty years of their wanderings in the wilderness.

When this was first written down in the thirteenth century, the existence of the Ancient of Days would have seemed to have been simply another miracle. Food from such a being would seem neither more nor less wonderful than food falling from the sky on to the desert. In the twentieth century, however, we take a different view. Food falling from the sky is something which is said to have happened on rare occasions, but such occurrences have never been scientifically proved. Certainly, regular food showers for forty years in one area have never happened outside the pages of the Bible. But food from a being like the Ancient of Days – today's technology has now reached a point where such a 'miracle' has come within our understanding. To us, there is no miracle, no magic, no

mysticism. No religious or occult happenings are involved. The Ancient of Days was not a bearded god-figure sitting on a throne in the sky, neither was it an elaborately-carved idol captured from some Canaanite tribe, as has been suggested. It was, in our view, simply a machine; a machine for making food. The *Zohar* tells us that it produced manna.

In our first chapter, we pointed out certain difficulties which would have beset the Israelites if the manna had fallen on the ground. It would have been difficult to collect, and to keep free from dirt and sand; enforcing a fair distribution among the people would have caused problems. We believe that these difficulties disappear; for if the manna came from a machine in the Holy of Holies, then the priests would have controlled it. The people would have queued up with their omer measures, which would have been filled quickly and efficiently by the priests. Perhaps this is why in the Christian communion, the 'host' is distributed from the altar, symbolizing the Holy of Holies. If the ritual followed the manna story in the Bible, the people would first have to collect it from the ground outside the church, and bring it to the priests for distribution. But this is not the way it happens; the priests produce the communion bread, as if by magic, from the altar.

Perhaps, to the Israelites, it did seem like magic; but if we ourselves could go back and stand outside the Holy of Holies, clutching our omer measures, like those ancient vasollarists, we would not call it magic, but technology. Our research leads us to deduce that the Ancient of Days was a machine, and one which worked according to principles which we now understand.

Before we can talk about a machine for making food, we must consider how we make food in the usual way – by means of agriculture. We can either grow plants, and eat them ourselves, or else we can feed the plants to animals, and eat the animals. If we have an acre of land – 0.4047 hectares as we now call it – and raise cattle on it, we can produce perhaps one bullock per year. This animal might provide 0.5 tonnes of meat. Alternatively, we can plough our acre of land, and grow wheat on it, and produce perhaps two tonnes of grain. With this we can bake bread, but it is not so good to eat as a juicy

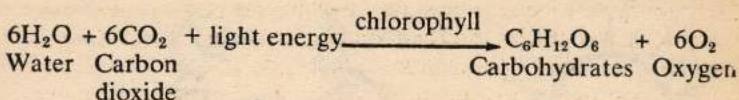
beef steak, even if there is four times as much of it. If we plant root crops on our acre, we can produce an even greater weight of food, but it may be less exciting to eat than bread. So we can if we wish produce more and more food on our acre, but, generally speaking, the greater the yield, the less palatable is our produce. It is possible to take the process much further. If we flood our field with water, and make a shallow pond, we can use it for the culture of algae – small water plants. We will produce over one hundred tonnes in a year in our small pond, but there is no point in doing so. Nobody will want to eat it – it is an unappetizing greenish sludge, tasting of mud and wet blotting paper. Highly nutritious, as much so as beef steak, but quite unpalatable.

If we look at our pond we may wonder where that great mass of algae has come from. If we have kept the pond filled with water it will always look much the same, even if we have continually gathered algae from it. The reason is that nearly all the weight of the algae has come from the air, not from the ground. Foodstuffs, as we know, consist of carbohydrates, proteins, and fats. These materials are all made up from four chemical elements – carbon, hydrogen, oxygen and nitrogen. All four of these elements are to be found in the air. Carbon is present as carbon dioxide gas, which forms about 0.03 per cent of the air we breathe. Hydrogen is one of the elements of water, and even when it is not raining there is plenty of water vapour in the air. Oxygen and nitrogen are the main gases which make up our atmosphere.

Plants can use these materials from the atmosphere to build up their bodies, and require only a very small quantity of other elements. In our algae-pond, we can supply these other elements by throwing in a few shovelful of fertilizer occasionally – the algae will obtain all the rest of their needs from the air, either at the pond surface, or from air dissolved in the water. However, there is something else without which the algae will not grow at all – and that is light.

Throw a sheet of black plastic on some grass, and what happens? The grass turns white and sickly, and finally dies, even if it has plenty of air, water, and soil. Without light, no green plant can survive. Plants are green because they contain chlorophyll, a chemical substance which enables them to

convert simple atmospheric materials into complex plant materials.



This chemical equation shows the main process going on in plants. They take water and carbon dioxide, and produce oxygen and carbohydrates. The oxygen gas is given off to the atmosphere, and the carbohydrates – starch, sugars, and cellulose – are used to build the plants' bodies. The entire process (photosynthesis) is fuelled with light energy, which normally comes from the sun.

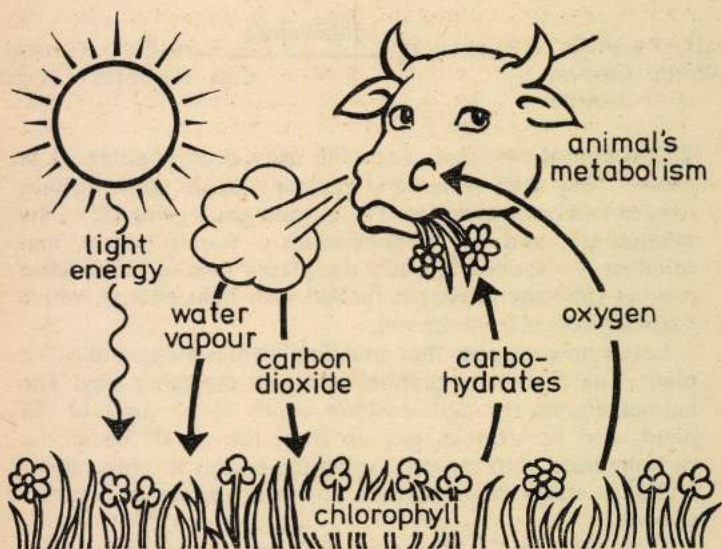
Let us now suppose that an animal comes along and eats a plant. The chemical equation then goes the other way. The animal digests the carbohydrate which forms most of the plant, and breathes in oxygen from the air. It burns the carbohydrate in its muscles, using the energy to move about and keep warm, and breathes out water vapour and carbon dioxide.

From this, it is clear that animals and plants depend on each other. Only plants can trap the sun's energy, and use it to turn simple chemical substances – water, carbon dioxide, and mineral salts – into complex organic substances such as carbohydrates, proteins and fats. If there were no animals, the plants would gradually use up all the carbon dioxide in the air, and then there would be no plants either.

Animals, on the other hand, need plants to provide them with fodder, and to provide the oxygen they breathe. If there were no plants, all animals including ourselves would soon suffocate, if they did not starve first.

So we can see that there is a cycle, plants using the sun's energy and fuelling the animals, and the carbon circulating from plants to animals and back again, via the atmosphere. This is known as the carbon cycle, and it is illustrated in Figure 4.1. The sun turns about 100,000,000,000 (10^{11}) tonnes of carbon from CO_2 to carbohydrates each year, through the action of plants. This is equivalent to about 0.6 grams of

carbon per square metre of the Earth's surface per day – an easier figure to grasp.

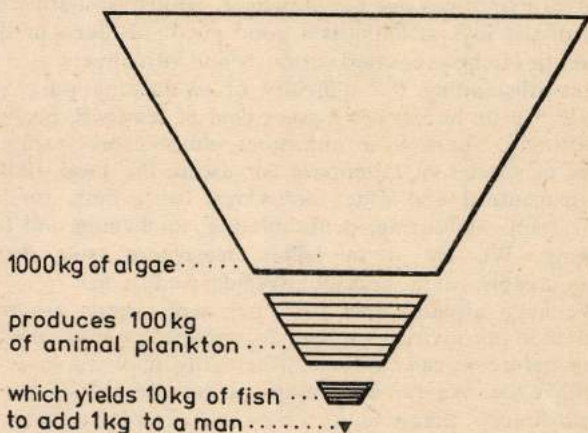


4.1 The carbon cycle

What has all this to do with the Ancient of Days? If we are correct in our suspicion that it was a manna-machine, it had to feed 600 families, and yet from the texts we can deduce that it was a fairly small machine, less than five metres in any dimension. On our acre of land, we might just feed one family, using normal agriculture. Therefore, the Ancient of Days must have been a highly intensive farm, producing enormous quantities of food from a small bulk.

Throughout man's history, he has moved steadily towards more intensive methods of farming. Our stone-age ancestors were hunter-gatherers. They followed herds of food animals in their migrations, and picked food plants wherever they found them growing. Later, they learnt how to domesticate animals, and to grow food crops. This enabled them to live in one place, and survive on a smaller area of ground. In the

twentieth century, we see new methods of intensive farming being developed which to some people are unacceptable. However, if we are to continue to produce more and more food on less and less ground, then, as the population steadily grows and a tide of concrete and asphalt swallows up the fields, these 'unacceptable' methods are necessary. New strains of cereals are being developed, which produce ever higher yields per acre – but large amounts of chemical fertilizer must be used. Pigs and poultry are kept in dark buildings – land is too precious to allow them free range. Oysters and fish are now being intensively reared, as are many other types of food. How much further can the process be taken, or will famine strike us all? All animals derive their food, directly or indirectly, from plants. This is illustrated in Figure 4.2.



4.2 A food pyramid

This diagram shows the importance of the algae, a general name given to thousands of types of plants from seaweeds to the green growths found in fish tanks, to the pondwater plants we mentioned earlier. Looking at the food pyramid, one wonders if it is possible to cut out some of the intermediate stages, enabling the higher animals – including man – to eat

algae. This would certainly increase the efficiency of the system.

The answer is that it is possible, and indeed, has been going on for a very long time. Cattle may be fed seaweed; hardy breeds even graze it on the beaches. There are many factories where cattle-feed is made out of seaweed. As for man himself, he eats carragheen, or Irish moss, a seaweed from which soup and a sort of blancmange may be made. In South Wales a species of red alga (*Porphyra umbilicatus*) is collected, dried, boiled, and served on toast with vinegar or lemon juice – or mixed with oatmeal and fried in cakes: laver bread. In Scotland another red alga, dulse (*Rhodymenia palmata*), is still sometimes eaten.

In China and Japan, seaweed is gathered and made into soup, used as flavouring, or just fried and eaten. It is cultured by growing it in bamboo tanks immersed in the sea. Much work has been done on intensive farming of algae, but as a food for man it has one big drawback – it just isn't attractive. One of the joys of living is a good meal: we like our daily necessities to be presented variously and attractively.

Notwithstanding the difficulty of swallowing pure algal matter, we do in fact eat a great deal of seaweed, probably unwittingly. There is an enormous industry processing the stipes of species of *Laminaria* for use in the food, baking, pharmaceutical and other industries, for gelling, binding, emulsifying, stabilizing, deflocculating, thickening and film-forming. We eat it in jellies, ice-cream, soft drinks, filling-creams, soups, sausage coverings and so on.

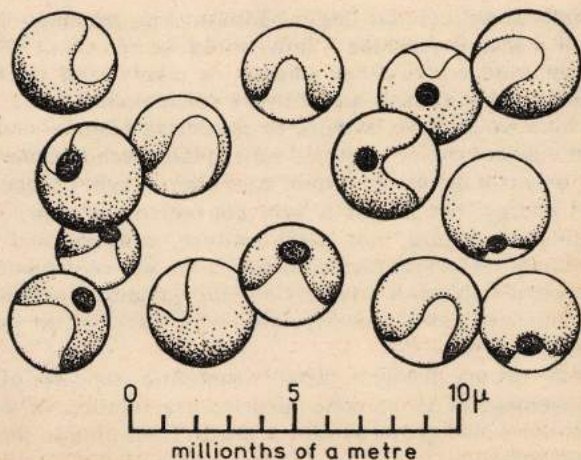
We have already seen that, per acre, plants are more efficient at producing food than are animals; animals must eat plants before we can eat them, necessarily involving some loss of efficiency. We can feed more of ourselves if we eat the plants directly. Likewise, experiments have shown that small plants are more efficient than large plants. We could grow oak trees on our one-acre experimental farm, but even if we could eat the timber, the amount of food produced would be far less than if we grew algae.

Because of this, a lot of work has been done on the continuous culture of algae. This means growing them in a controlled environment continuously, harvesting some at intervals. The type of alga often used is *Chlorella*, a minute,

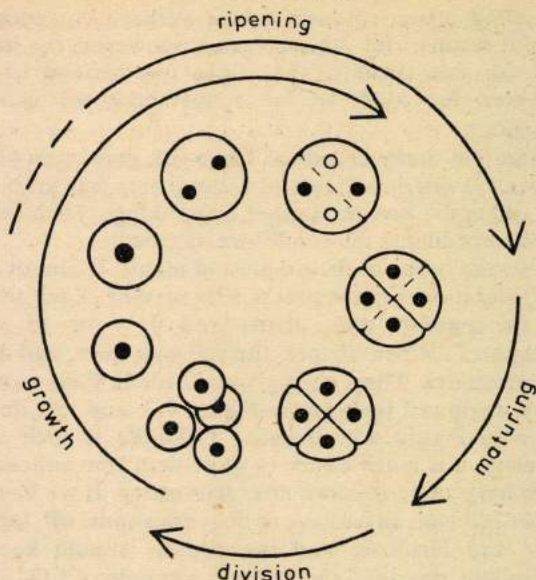
one-celled plant, though some authorities report more hopeful results with other cultures. However, the important point for our thesis is that algae can be and have been cultivated for food, so for convenience we will discuss *Chlorella*.

There are many breeds of *Chlorella*, coming in all shapes and sizes, living in all sorts of water from clear to foul, in the soil, and in the bodies of other living things. Their behaviour varies according to the conditions of growth.

Chlorella is one of the simplest of plants. It cannot move by itself, and it does not reproduce by seeding. Each cell grows, and its contents then divide into 4, 8 or 16 so-called 'autospores'. When mature, the cell wall splits, and out come the autospores. These then grow, divide in their turn, and so on. A single cell is shown in Figure 4.3, and the life-cycle is shown in Figure 4.4. Because *Chlorella* is such a simple organism, it is much easier to grow than conventional crops, which have to be re-sown after harvesting. If we have a tank full of *Chlorella*, all we have to do is draw some off, top up with water and fertilizer, and the process should keep going indefinitely, provided that there is a supply of CO_2 and light. Unlike cabbages, *Chlorella* can be cultivated continuously.



4.3 Cells of *Chlorella*



4.4 The life-cycle of *Chlorella*

Suppose we set out to design a food-making machine – let us call it a manna-machine – how would we set about it? All known food comes from animals or plants, and we have explained that animals are not very efficient converters. Our machine would have to work by producing plants – and the most efficient choice is a small water plant, such as *Chlorella*. Not only is it the most efficient converter of light energy into food energy, but also it is very convenient to grow, since continuous culture, not batch culture, can be used. An additional important factor, to which we will return later, is that, unpalatable as it may be, *Chlorella* contains the elements of a balanced diet – protein, carbohydrate and fat, as well as some vitamins.

Our manna-machine would therefore consist of an arrangement of tanks containing culture solution in which *Chlorella* would grow, and from which, from time to time, it would be harvested.

Now according to the *Zohar*, the Ancient of Days was a manna-machine, and it was composed of an assembly of 'skulls' or tanks. We have discovered that the title itself could mean: Transportable One of the Tanks. Can this be coincidence? Did somebody invent the whole description of the Ancient of Days, in a fit of mental aberration, and did it just so happen that he described something like a manna-machine? Or did the machine really exist?

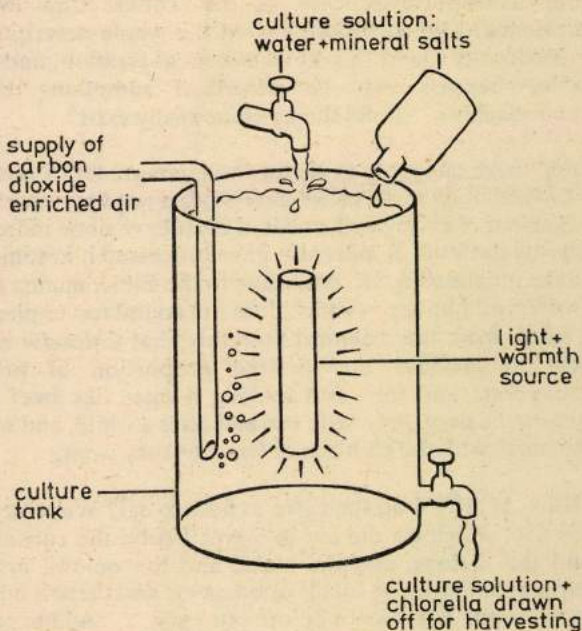
Setting these questions aside for the moment, let us return to the *Chlorella*. Its taste, as we have said, is not very exciting. If the Ancient of Days produced it, it must have done more than just grow the stuff. It must also have processed it in some way to make it palatable, for, according to the Bible, manna tasted of 'wafers and honey' – which does not sound too unpleasant. We know from the technical literature that *Chlorella* can be grown to produce any desired proportion of protein, carbohydrate and fat – but making it taste like beef steak might not be easy. Any taste can pall after a while, and we can sympathize with the children of Israel as they wept:

(Num. 11:4ff) Who shall give us flesh to eat? We remember the fish, which we did eat in Egypt freely; the cucumbers, and the melons, and the leeks, and the onions, and the garlick: but now our soul is dried away: and there is nothing at all beside this manna before our eyes . . . and the people went about, and gathered it, and ground it in mills, or beat it in a mortar, and baked it in pans, and made cakes of it: and the taste thereof was as the taste of fresh oil.

This passage is particularly interesting, as it supports our view that the manna was a real food, not an invented legend. It seems too authentic a touch to have been made up. However perfect a food may be as regards nutrition, if nothing else is available it can be despairingly dull.

As we have said, algae, like other plants, need the following requirements if they are to grow: certain minerals dissolved in water (the culture solution), carbon dioxide, light, and warmth. If the *Chlorella* is to be made edible, we must also

provide a means of harvesting and processing it. The needs are shown diagrammatically in Figure 4.5.



4.5 Schematic diagram of apparatus for cultivating and harvesting *Chlorella*

Let us look at these factors in turn, and see what we would need to set up a *Chlorella* culture apparatus – or manna-machine.

The culture solution

This is the liquid in which the plants grow. It is water, in which is dissolved the appropriate quantities of the mineral salts which the plants need. The principal work of the plants is to produce carbohydrates, and the hydrogen required will be drawn from the water. The machine must therefore be connected to a water supply. The main minerals needed are

nitrogen (usually supplied as ammonium compounds), potassium, and phosphorus. The *Chlorella* used might be capable of fixing nitrogen from the air, in which case the ammonium compounds can be reduced or eliminated. Magnesium, sulphur, and iron are also necessary in smaller quantities, and traces of aluminium, arsenic, boron, cobalt, copper, iodine, lithium, manganese, molybdenum, nickel, silicon, and zinc.

As we have said, all these elements are supplied as salts dissolved in the water, and it is important that the concentrations be maintained. When *Chlorella* is withdrawn, the culture can be topped up with fresh culture solution, but this is rather wasteful. It is better if liquid drawn off with the *Chlorella* can be returned to the tank, and topping up done with pure water. The concentrations of salts should be monitored continuously, and more added only when necessary. This gives the most economical use of the mineral salts.

Carbon dioxide (CO₂)

Algae such as seaweeds grow profusely using atmospheric CO₂ dissolved in the water. In some experimental systems it is necessary to bubble CO₂ through the liquid, both to keep the liquid saturated with the gas and to prevent the *Chlorella* cells from settling. CO₂-enriched air is used, rather than pure CO₂; too much CO₂ is counter-productive. If a way could be devised of keeping the cells in suspension, and supplying CO₂ in some other way, it might be possible to do away with this complication.

Light

The energy in the system is derived from light, and so it is most important that the culture is properly illuminated. Artificial light must be used, because even direct sunlight is not intense enough to keep the culture growing at the rate required. It has been found in laboratory experiments that the amount of illumination affects the size to which the cells grow before dividing.

Chlorophyll looks green because that is the part of the spectrum that it reflects – it absorbs and uses the red and blue

wavelengths of white light. Therefore when it is grown artificially, illuminating it with white light is wasteful. Ideally, it should be supplied only with the wavelengths which it can use.

In white light, *Chlorella* looks like a green soup. Light does not penetrate very far into it. Therefore, to make best use of the light, the culture vessel should present a large area to the light source. This may be achieved by making the culture tank like a steam boiler, with many tubes through it, each tube containing a fluorescent lamp. This makes better use of the light than if a single, intense lamp were placed at the centre of the tank.

Data on experimental cultures show that they may use up to 20 per cent of the light energy supplied. We believe that this figure can be vastly improved.

Warmth

Chlorella is very sensitive to temperature. If it is too low growth is slowed down, and if too high the plants may be killed. Strains have been developed where maximum growth takes place at temperatures between 20°C (68°F) and 40°C (104°F) or more. The light source illuminating the culture will give off some heat, so it is advantageous to use a strain of *Chlorella* which thrives at the working temperature of the apparatus.

Harvesting

This is the withdrawal of the *Chlorella* for preparation and consumption. We will discuss it in greater detail later. If the material is withdrawn too quickly, the concentration of *Chlorella* will become too low, and the culture will not make best use of the light available. If it is withdrawn too slowly, the culture will become too dense, and the plants will stifle. The rate of withdrawal can be adjusted to keep the *Chlorella* at the correct concentration.

In 1903, a Russian schoolmaster, Konstantin Tsiolkovsky, published an article on space travel which was so far ahead of its time that little notice was taken of it. Apart from pointing out that liquid-fuelled rockets would be the only practical way

of travelling in space, Tsiolkovsky suggested that space-crews would have to take green plants with them to refresh the atmosphere inside their vehicles. However, the interest in growing *Chlorella* artificially first arose because of its possible uses as a food. But scientists soon realized that it had another use – oxygen regeneration. We have already discussed how the Earth's plant life keeps the air fit for animals to breathe, removing the CO_2 and putting back the oxygen. A *Chlorella* cultivator will also do this, even if the *Chlorella* itself is not eaten.

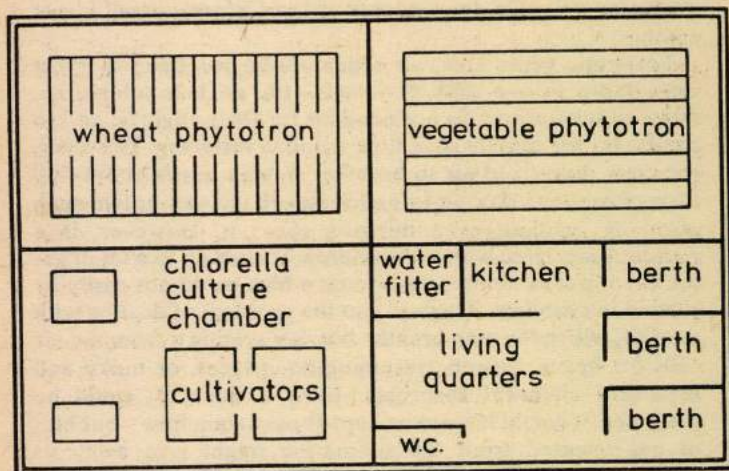
For some years now, air regeneration has been of great importance in one class of vessel – the nuclear submarine. Nuclear submarines do not need air for their engines, and so can travel for months at a time without surfacing. However, the crew does need air to breathe. A man needs about 500 litres of oxygen a day, and we each absorb this amount through our lungs without even thinking about it. However, in a nuclear submarine with its large crew, it adds up to a lot of gas for a few weeks' cruise, an amount which could not easily be carried in cylinders. There is also the problem of dealing with the CO_2 which the men breathe out. Separating it from the air calls for heavy, power-consuming equipment, or bulky and expensive chemical absorbers. Even if the CO_2 could be extracted, it would have to be kept aboard somehow – bubbles of gas released from the submarine might give away its position – and what would happen if it was discharged under the polar ice cap? The answer to all these problems is a *Chlorella* cultivator, which would remove the CO_2 and put back the oxygen at the same time. All it needs to keep going is energy, plentiful aboard a nuclear-powered vessel, and a small amount of fertilizer. If necessary the *Chlorella* can be dumped in sealed containers, or burnt to extract the water. The submarine then becomes a world in miniature, with its own ecological cycle, with minimum dependence on the larger world around it. If the *Chlorella* could be made edible, the crew persuaded to eat it, and their waste products used as fertilizer, then the cycle could be closed completely.

A spacecraft, like a nuclear submarine, is a closed-cycle environment – only it is surrounded by empty space, not water. Both submarines and space exploration have

stimulated work on *Chlorella* cultivation. The results of one experiment have recently been published in Russia.

The Bios-3 experiment

Sergey Vlasov, in his *Prototype of a space house*, writes of the *Bios-3* experiment (see Figure 4.6). This was a closed-cycle environment in which three men lived for six months.



4.6 The *Bios-3* experiment

The house consisted of four rooms – living quarters, a *Chlorella* culture chamber containing two cultivators, and two phytotrons – hydroponic cultivators in which plants were grown without soil, their roots being held in a nutrient solution. One of the phytotrons grew wheat, and nine different sorts of vegetables were grown in the other. The phytotrons provided a daily ration of 200 g of wheat and 388 g of vegetables for each man.

The men obtained their water from condensation from the phytotrons and the *Chlorella* cultivators. Their body waste was used to fertilize the *Chlorella*, while other waste such as washing-up water was used in the phytotrons.

The strain of *Chlorella* used consisted of 50 per cent protein, 20 per cent fat, 10 per cent carbohydrate, vitamins A, B group and C, and mineral salts. It could have been eaten, but it wasn't – perhaps because the occupants didn't fancy the recirculation methods. Its purpose was to regenerate oxygen for the men. The cultivator produced 2,000 litres of oxygen per day, which was said to be '20 times its volume' and was more than enough for their needs. We know that existing strains of *Chlorella* can produce up to thirty times their own volume of oxygen per hour. From this, we calculate that the space house cultivators could have contained as little as 2.78 litres of *Chlorella* in 100 litres of water.

We are not told what happens to the *Chlorella* that was grown. Since it wasn't eaten, it must have been harvested and put aside. What is interesting is the concentration of *Chlorella* in this system: 2.78 per cent by volume. This is about 20 times as great as the packed cell volume reported in other experiments (0.15 per cent by volume).

The density of dry *Chlorella* is 0.25 g/ml, so the Bios-3 cultivators must have contained 700 g of the plants. If we assume a cell-doubling time of 8 hours for this experiment – that is, the plants double their volume every 8 hours – then 4.9 kg of material is produced daily by the 100 litres of culture, or 49 g/l per day.

When we first investigated the Ancient of Days, and came to the staggering conclusion that it might have been a manna-machine we could not see how it could have been practicable. We did not think it was possible to produce so much *Chlorella*, or for that matter, any other plant, in such a small space. Nevertheless, we pursued our investigations, and surprisingly we found that it could be done. The *Chlorella* might have to be a little bit better than strains known to us, and the efficiency just that tiny bit higher, but the literature shows that an enormous amount has been done, and presumably still waits to be done, on 'improving' *Chlorella* strains to suit particular conditions of growth. Clearly, the whole process could be fitted into a machine small enough to go into the Holy of Holies of the Temple, and light enough (with its tanks drained) to be carried by a small group of men.

Our theological researches and our engineering calculations were both leading to the same conclusion – that the Ancient of Days was a manna-machine, and that it came from a technology somewhat in advance of our own. We could not make an Ancient of Days ourselves – yet – but we know enough today to be able to say that it will be possible, in the not-so-distant future.

In the next chapter, we will look at some practical problems of manna-machine design, relating our sizes and quantities to the needs of the Israelites. In Part 3, we will examine the relevant texts of the *Zohar*, and compare them with the details of our design. We find it difficult to believe that the similarity which we will demonstrate can be mere coincidence.

Practical manna making

Suppose that we were going to build a machine to feed the Israelites in the desert, using the principle of *Chlorella* cultivation, how would we set about it?

Firstly, we must settle the question of the number of Israelites to be fed. As mentioned earlier, the figure of 600,000 given in the Bible is thought by many to be an exaggeration, and 600 families is probably the true reading. This enables us to do some rough calculations, based on the food needs of such a group.

Let us assume that each family consisted of two adults, and three children. As every slimmer, or slimmer's mate, knows, food needs are measured in calories. (We crave the indulgence, at this point, of those who might prefer us to use SI units.) In ancient times, and in a hot climate, people managed on less food than Europeans eat today – so let us generously assume 2,000 calories per day for each man, 1,600 for each woman, and an average of 900 calories each for an average family of three children. This gives a total of 6,300 calories daily per family, or 3.78 million calories per day for the whole tribe of Israelites.

The Bible states that there was no manna on the Sabbath, and therefore there was an extra day's ration on the eve of the Sabbath. As we shall see, the machine did not function on the Sabbath, and therefore the extra day's supply had to be built

up during the week, as a surplus over and above the amount distributed each day. This means that the machine must produce $7/6$ ths of the daily requirement each day, or 4.41 million calories.

The food value of types of *Chlorella* known to us is 5.5 calories per gram. If our machine were to use a similar strain of the plants, then the daily production would have to be:

$$\frac{4.41 \times 10^6}{5.5 \times 10^3}, \text{ about } 800 \text{ kg}$$

The *Bios-3* experiment produced 49 g/l of culture per day, if we assume that the *Chlorella* doubled every 8 hours. The amount of material available each day obviously depends on both the cell-doubling time and the frequency of harvesting.

For *Bios-3*, for example, we could draw up a table as follows:

Time (hours)	0	8	16	24
Cell mass (kg)	0.7	1.4	2.8	5.6

This shows that, at the end of 24 hours, 4.9 kg of material could be removed, leaving 0.7 kg for the cycle to repeat itself over the next 24 hours. If we do this, however, the cell concentration is eight times as much at the end of a day as it was at the beginning, and this overcrowding can itself slow growth, making the system less efficient.

To obviate this, we could harvest more frequently. Since the quantity of material doubles every 8 hours, we could harvest half of it at the end of that period. However, if we still want to obtain 4.9 kg of material in 24 hours, our initial quantity will have to be larger:

Time (hours)	0	8	16	24
Cell mass (kg)	1.63	1.63	1.63	1.63
Harvest		1.63 +	1.63 +	1.63 = 4.9 total

If material is harvested continuously, the production rate is given by the formula:

$$R = \frac{0.693 \times \text{cell mass}}{\text{cell doubling time}}$$

We see, therefore, that we could produce 4.9 kg in 24 hours with a cell mass of 2.36 kg, after an initial time required to build up this working cell mass. The *Bios-3* experiment achieved this rate with 100 litres of culture solution. Applying the formula to a production rate of 800 kg/day, with 8-hour doubling time, over 16 m³ (16,000 litres) of culture solution would be required, at *Bios-3* density.

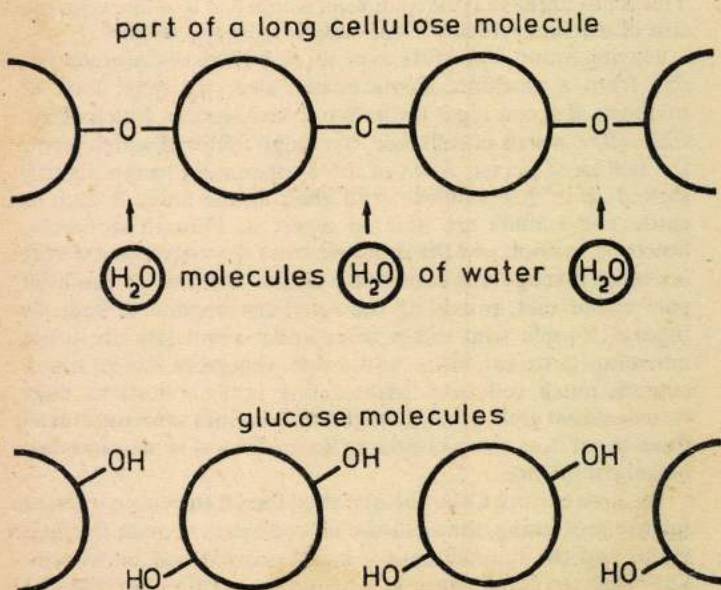
The culture vessel volume can be reduced by decreasing the cell doubling time, or by using a plant which will thrive at a higher density. We know that it is possible to do this and by growing the right strain of *Chlorella* in the right conditions we should be able to build a manna-machine producing 800 kg of material per day with a culture-vessel volume less than 5,000 litres, equivalent to a sphere about 2.12 metres in diameter. This is not unreasonable and, what is more, it is in line with the size of machine which we will deduce from the texts.

Having found it possible to produce 800 kg of *Chlorella* per day from a machine of reasonable size, we must look at methods of preparing it for human consumption. Much of the *Chlorella* consists of cellulose, the tough material which forms the bodies of plants. A lot of the nourishment in the plant is locked up in this cellulose, and grass-eating animals such as cattle and rabbits are able to digest it. Human stomachs, however, cannot, and the cellulose from the vegetables we eat is passed through our alimentary canals. It forms an essential part of our diet, providing the roughage needed to keep us regular. People who suffer from under-regularity are often encouraged to eat bran, and other vegetable foods which contain much cellulose. Meat-eating animals such as dogs cannot digest grass at all, though their instinct sometimes tells them to eat it, as a way of ridding themselves of worms or other bowel complaints.

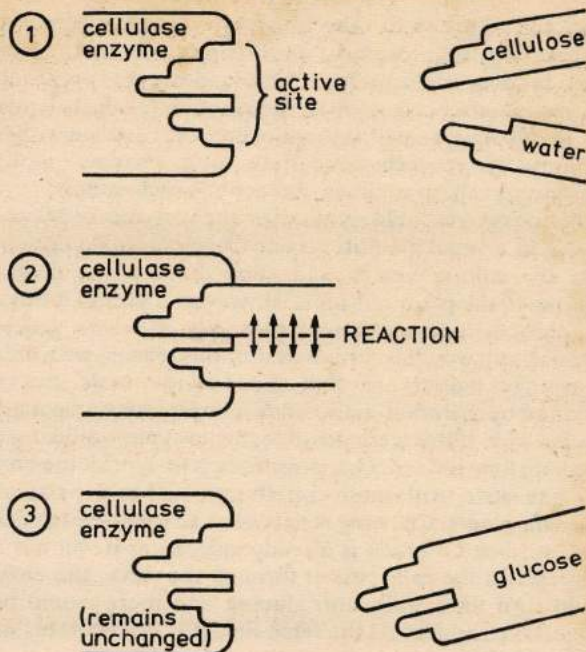
So, if we culture *Chlorella* and then feed it to people without further processing, the cellulose in it will pass straight through them, and the nourishment it could provide will be wasted. Obviously, to get the most value from the culture, the material must be processed to make the cellulose digestible. For

cellulose, as we have said, is a carbohydrate, and can be as nutritious as sugar or glucose. Cattle and other ruminating animals chew the cud. The grass which they have eaten is brought back up into the mouth, where it is chewed up with an enzyme which breaks down the cellulose. We must ask: is it possible to reproduce this in the machine?

Enzymes are special chemicals produced by living things which enable chemical reactions to take place, but do not themselves change as a result of those reactions, as we will describe shortly. One enzyme is usually specific to one reaction. For example, cellulase, a multi-component enzyme system, will break down cellulose into sugars, provided that water is available, and a mechanical action (such as chewing) brings it into contact with the plant material. The molecule of cellulose consists of many thousands of glucose molecules joined together; the result is a very large, tough molecule. If



5.1 A molecule of cellulose (above) and molecule of glucose (below)



5.2 The lock-and-key hypothesis of enzyme action

we can put back molecules of water (H_2O) into the cellulose molecule, we can convert it back to glucose. Figure 5.1 shows molecules of cellulose and glucose. However, this will not happen if we just add water. Grass left in water does not turn into a solution of glucose. Something more positive must be done to put the water back, and break up the cellulose. Boiling with acids is one way of doing it, but this is very drastic and will destroy a lot more than the cell wall. Nature, as we have seen, uses the enzyme cellulase for the conversion.

Rather than boiling our material in acid, then, let us imitate nature and use cellulase. This has the added advantage of its not being used in the process, and the way in which it works – the 'lock-and-key hypothesis' – is shown in Figure 5.2. The enzyme molecule has an active site on it, into which the

water and cellulose fit. The fit is very exact, and that is why enzymes will only promote one type of chemical reaction. When random collisions have filled both sockets on the active site, the reaction occurs; then the reaction products leave the site. In this way, a small amount of enzyme can deal with large amounts of reaction materials, one enzyme molecule facilitating perhaps millions of reactions each minute.

Supposing we could synthesize the enzyme cellulase, we could add a small quantity to our *Chlorella* as we drew it off from the culture vessel, and allow it to break down the cellulose in the plant cell walls. However, if we did it this way, the cellulase enzyme would pass out with the processed material, and would be lost to us. For this reason, we would try to arrange matters so that the enzyme molecules were anchored by their non-active ends to some part of the machine in some way. If this were possible, the enzyme would last for a very long time indeed. One possibility is to deposit the enzyme on a fine sieve, with mesh size about equal to the size of the *Chlorella* plants. Chewing is necessary to separate the cells of grasses: since *Chlorella* is already unicellular it will not need chewing. As the cells passed through the sieve, the enzymes would turn their walls into glucose and there would be no indigestible residue. At the same time, the cell contents would be unaffected.

Our argument so far has been based on nutritional theory, and on the need to extract every last calorie of food value from our *Chlorella*. It would have been most inefficient if a large part of the culture had merely provided roughage for the Israelites. In fact, it appears that some processing of the kind described above must have taken place in the Ancient of Days. For according to the Aggadah, the Rabbinical commentary on the Old Testament, there was a tradition that 'the bread of angels was ground by them in Heaven, and that men who ate it became as strong as angels, and had no need to relieve themselves as *it was fully absorbed in the body*' (our italics). Can it really be that the whole manna story was invented? Who could possibly have dreamt up such a detail as this? Truly, the Jewish traditions range from the sublime to the ridiculous; from the eschatological to the scatological.

Psalm 78:4 has:

The Lord . . . had rained down manna for them to eat, and had given them the corn of heaven. Men did eat angels' food . . .

The Hebrew phrase here translated as 'angels' food' is *lehem abirim* (LHM ABIRIM), which means 'the bread of the strong' or 'the bread of those who fly'. The idea that angels' food was fully absorbed in the body is interesting, as such a food would be immensely useful for shorter journeys. For longer journeys, with a recycling device such as a manna-machine on board, the production of bodily waste would be no disadvantage.

So both from our own researches, and from the interpretation of the ancient traditions, the evidence confirms that the cellulose of the cell walls must have been broken down into sugars. Returning to the Biblical account, Exod. 16:31 states:

And the house of Israel called the name thereof Manna: and it was like coriander seed, white; and the taste of it was like wafers made with honey.

'Wafers made with honey' – this strongly suggests that the cell walls were converted to sugar; but what of the white colour? Had the green chlorophyll been removed from the *Chlorella*, or is this a mistaken description? Chlorophyll is not harmful to us, and removing it would seem to be unnecessary. Looking at the Hebrew, we found that, grammatically, the text would be better read as: 'like the seed of white coriander'. Perhaps this was a variety of coriander, and its seeds may have been green, or some other colour. Our view is confirmed by Rashi, the eleventh-century French commentator on the Bible, who stresses that the manna-coriander comparison is 'in respect of the roundness, and not of the colour, *which is not white*' (our italics).

There is another reference to the colour of manna in the Bible in Num. 11:7:

... and the colour thereof as the colour of bdellium.

No-one knows what was meant by bdellium, though the reference books are full of guesses. According to the *Zohar*, it is like a 'crystal which contains in it all colours', which is scarcely helpful either. All we can conclude is that the colour of manna is not known with certainty, although, as we have seen, the traditions record many other details concerning it.

If the manna-machine used a *Chlorella* similar to present earthly strains, processing would have been necessary for other reasons than breaking down the cell walls. Experiments have been carried out in which men were fed 150 gm per day of unprocessed dried *Chlorella*, as a result of which they developed swollen hands and faces, bleeding sores, and other skin complaints. The *Chlorella* was then processed by soaking in alcohol, filtering, and drying again. This removed constituents which dissolve in alcohol. Men who ate *Chlorella* treated in this way suffered no ill effects, while rats fed on the material extracted with alcohol suffered severe kidney damage. Therefore earthly *Chlorella* does contain some poisonous materials, which must be removed to make it safe to eat. However, the manna-machine may have either used some non-toxic strain, or it may have used further processing. In any event, the result of the processing would have been a kind of sugary soup, containing what remained of the processed plants after they had been treated with enzymes. The manna was said to have been small sugary grains. All that is necessary to convert one to the other is to dry out drops of the 'soup', probably with vacuum and perhaps gentle heat. Light toasting of the grains as they dried out would give the 'wafers' flavour mentioned in the Bible.

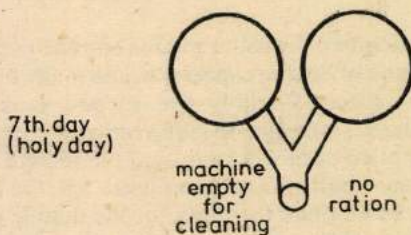
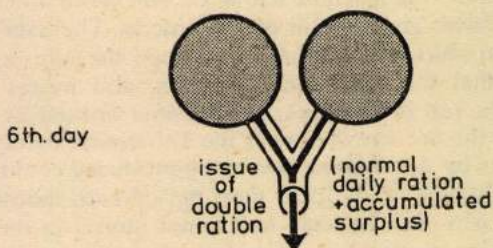
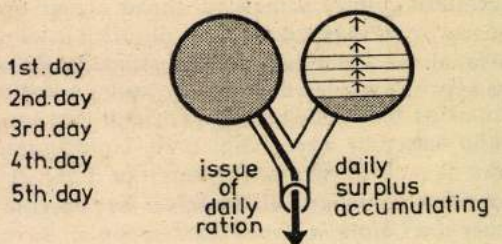
The parts of the machine where the *Chlorella* was concentrated, treated, and dried, were not accessible to the Israelites, and the texts do not therefore describe them in detail. However, there are indications that some processing was carried out, and our analysis shows that if a special strain of plant had been used, processing could have been reduced to a simple enzyme treatment, followed by drying. Our technology today might not be capable of producing a machine which could treat 800 kilograms of *Chlorella* per day,

in a small space, and make it into a palatable food; but we know enough to be able to say that it is possible. As we have suggested, the manna-machine of the *Zohar* must have come from a technical culture somewhat ahead of our own – far enough ahead for us to be unable to duplicate it in all respects, but not so far ahead that we cannot understand how it worked.

If it was kept in a sterile environment, such a machine could go on producing food indefinitely, provided that supplies of the essential materials were maintained. Unfortunately, our atmosphere is not sterile, and sooner or later unwanted bacteria or other growths would find their way into the culture and smother the *Chlorella*. Once this happened, the machine would have to be stopped, and given a thorough cleaning-out and sterilization. This is the reason why there was no manna on the Sabbath – the machine had to be shut down and cleaned, and the *Zohar* gives details of this process. The Sabbath was the day on which the machine was cleaned, the holy day; it is of interest that the word 'holy', *qadosh*, also means 'clean'. During the rest of the week, the machine worked 24 hours a day – for the fire was seen over the Tabernacle by night, and the smoke by day. Manna was being produced continuously, but was distributed during a short period each morning. We now see why the texts say that it was stored in the 'hosts' before being discharged. A whole day's supply must be built up during 24 hours, and also one sixth of a day's supply on top, to be kept back for the double ration on the day before the Sabbath.

The texts mention two 'hosts' or manna storage tanks. Why is this? A single tank of double capacity would make better use of the available space. Possibly the second tank was a modification to the basic design, to make rationing easier. One tank could be emptied each weekday, and the second allowed to fill up during the week as shown in Figure 5.3. On Fridays, both tanks could be emptied together, for the double ration.

The size of these tanks would have been considerable, and therefore it is not surprising that they are frequently mentioned in the texts. We shall see that 'Lord of Hosts' was originally a title of the machine, which later became transferred to God Himself. A day's supply of 600 omers (the ration was one omer per family) would amount to 2,220 litres,



and each storage vessel could have been a sphere 1.62 metres in diameter, or a cube of 1.3 metres side. Even compared with a possible culture vessel volume of 5,000 litres, these tanks would have been a very prominent feature of the machine.

We will discuss the engineering of the machine in greater detail later. So far, we have shown how such a machine would work, and that it is possible. We will now look at the *Zohar* texts and show the correlation between them and a manna-machine design.

Part Three

THE ANALYSIS

Introductory note

In this part of our book, we are setting out to decode some ancient texts which have baffled the best brains of mankind for centuries. We have translated them from Aramaic, a language most people have never heard of. Even our English translation is not very easy to understand at first sight. We have done a great deal of work, first in producing the translation and then in interpreting it, a task which has taken us several years, and which has forced us to explore many byways of early Jewish history and to read many obscure books.

In Part 3, we quote passages from the texts which describe the Ancient of Days, and demonstrate that these must be a description of a machine. What is more, we show that this machine meets all the basic requirements for manna-making described in Chapters 4 and 5; there is a dew-still, to provide the water; a light-source, to provide energy to make the plants grow; a culture vessel, with ventilating coils, in which they can thrive; tanks for containing seed and fertilizer; a power plant to provide the energy; and an exhaust for getting rid of waste heat. Besides describing all these parts, the texts also give an account of the weekly cleaning operation, the dismantling and reassembling which took place in the Tabernacle, and they mention other features which we have not yet satisfactorily identified. To keep our book down to a reasonable length, we are covering only the bare minimum of the details in the *Zohar*, the minimum we consider necessary to establish proof. Our source material is not a few disconnected myths and legends, but an entire body of knowledge, which fills a book in

itself; if we were to discuss it all, we would need much more space.

However, as we mentioned in our note on page xii, our full translation entitled *The Kabbalah Decoded* is now available, and is recommended reading for anyone who wishes to test our reasoning.

In the first chapter of Part 3, we will discuss some of the basic codewords used in describing the machine, and show how these supposedly religious terms must refer to physical structures.

The codewords of the *Zohar*

One of the disconcerting things about the Ancient of Days texts is the odd language in which they are written – not the Aramaic, but the strange words which are used. We have already mentioned the penis, and the skulls, the uppermost one of which is called ‘wisdom’. The writings are full of words such as these, used in a bewildering fashion, and it is this which has caused most people to dismiss the texts as nonsense. Over the centuries which have passed since the *Zohar* was written, theologians and magicians alike have scratched their heads over these books, seeking in vain some hidden spark of mystical meaning. However, once the texts are accepted as a straightforward technical description, everything falls into place.

The peculiar words used are merely technical terms; this is borne out by the texts themselves, for they give definitions of many of them. When we are told: ‘one skull is the wisdom’, we know that ‘wisdom’ is simply the name for one of the skulls. The texts go on to use the word when referring to this skull, and if this is the meaning taken they make perfect sense. We must rid ourselves of the notion that wisdom is an abstract intellectual quality; it is purely and simply the name of one of the skulls; the word ‘skull’ is itself used to denote a vessel or tank. When a computer engineer today talks of ‘memory’, he is referring to a piece of hardware, not our faculty of recollection.

Because of this, the work of translating the texts is twofold. We have first to turn the Aramaic into English, and then to interpret the result. For these texts are technical, and they are no easier to read than any modern technical text. It is necessary to learn the technical terms before they can be understood. Unfortunately, in this case, many of the technical terms also have religious or mystical meanings or connotations, which can be off-putting – so we must ask the reader to bear with us in our interpretation of the jargon, until he can understand it himself. When he can do this, he will know that he is reading a description of a machine – a machine which was not made on this planet. If it is any consolation, the technical interpretation is a great deal crisper and less equivocal than the mystical one.

Wisdom and Understanding

Wisdom and understanding are two of the commonest codewords of the *Zohar*, and they also occur together frequently in the Bible. They may have been used as passwords by the Reapers of the Holy Field, in much the same way that Masons today recognize one another by working certain words into their conversation. Perhaps it was once possible for a Reaper to make a casual mention of 'wisdom' in a Jerusalem wine-shop, and if a fellow-customer replied with a remark about 'understanding', the two would have recognized each other as members of the society. 'Wisdom' is ChKMH (chokmah) in Hebrew, and the same word is used in the Aramaic of the *Zohar*. However, when the upper skull is meant, the emphatic form ChKMThA (chokma-ta) – *the* wisdom – is generally used. The upper skull is also known as the upper brain:

(GHA 58) In the cavity of the skull is the ether-skin of the upper wisdom, which is concealed from all. (The skin) forms a partition, and it is not found, and it cannot be made to open. And this skin is made to cover over the brain, which is the concealed wisdom. And because this wisdom is covered over by that skin which cannot be opened, it is called the concealed wisdom . . . and this skin has an opening towards

the Small-faced One, and through it his brain is extended and goes out to thirty-two byways.

According to the mystics, the 'concealed wisdom' is some esoteric knowledge which man can never learn. But if this is so, why should it be described like this? If we read this as a simple mechanical description, the 'concealed wisdom' is a 'skull' or tank which cannot be got at because it is covered over with the 'ether-skin', which will not open. The word translated as 'ether' here is *avira* which properly means 'empty space'. However, we have retained 'ether', the word used by Mathers. The ether-skin may be a covering of some transparent material:

(GHA 64) Nevertheless, the skin is opened underneath, and this is what they teach. The letters Th, I and V are engraved upon the Ancient of Days, but not on the window [or blister] which hangs in him, which is without blemish.

Another feature of the Ancient of Days is that he is covered with various inscriptions, like many modern machines. The word ThIV means a sign or mark, or the letter Th of the Hebrew alphabet. The window or blister (*kuvtha*) may refer to the ether-skin; Mathers omits it in his translation, evidently disliking the idea of gods with windows in them. The word *kuvtha* is also sometimes used to mean a Biblical text or quotation, but in this case 'window' makes more sense. The word 'hang', *teli*, is used in the *Zohar* meaning simply 'to be in a certain place'.

The 'wisdom' has many other names:

(LHA 58) The upper wisdom is inside the head; it is concealed and is called the upper brain, the concealed brain, and the brain that appeases and is quiet. And there is no son of man that knows it.

(LHA 252) And these are the secret things of which it is written: 'And a river went forth out of Eden etc.' What is this Eden? the upper wisdom. And this . . . is for watering the garden.

(GHA 222) Wisdom is the father, understanding is the mother.

What was the function of the 'wisdom'?

(GHA 44) And from this skull, there distils the dew, on the outside part (of the skull), and it fills his head every day.

According to the mystics, the dew 'symbolized' knowledge or wisdom, which was visualized as trickling down through the channels of the brain into all the parts of the body. But what do the texts say about this 'dew'?

(LHA 188) This wisdom is opened, and a river goes out which runs and goes down to irrigate the garden. And it enters into the head of the Small-faced One . . . and from there it is conducted and flows into the whole body, and it irrigates all those plants.

The wisdom is also known as the I; another of the parts of this machine designated by letters:

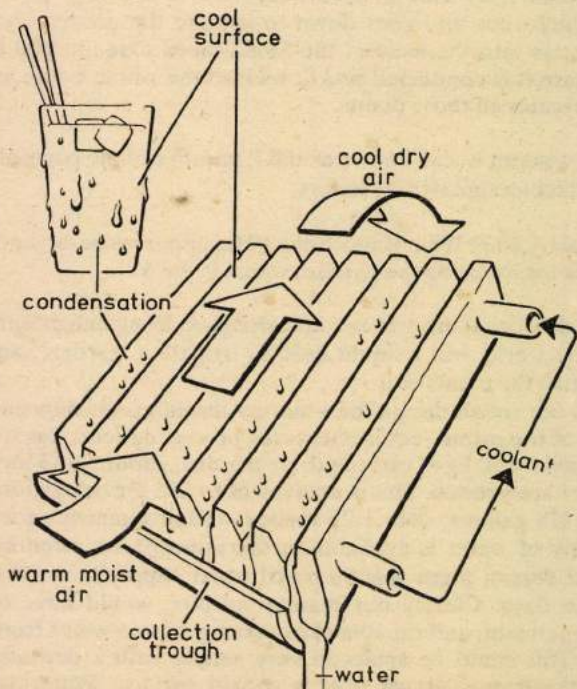
(LHA 253) What is this Eden? The upper wisdom. And this I is for watering the garden, which is the V.

The dew, it seems, was not knowledge to bring enlightenment to the world, but a liquid used to irrigate a 'garden', and to nourish the plants in it.

In our rough design for a manna-machine, we showed that one of the prime requirements for producing food was water. To make 800 kg of carbohydrate per day, about 1,333 litres of water are needed. This is equivalent to 293 British gallons, or 367 US gallons; over 1.25 tonnes – a fair quantity of water. Plenty of water is available in the atmosphere, even in the Sinai desert; there was no piped water supply in the area in those days. Clearly our manna-machine would have to be independent, and capable of extracting its own water from the air. This could be achieved very simply with a dew-still, in which air was drawn over a cooled surface. Water would condense as dew droplets, and run down to be collected in a

channel at the bottom (see Figure 6.1). So in our interpretation, we take the simplest possible answer – the ‘dew’ of the texts was simply that – water extracted from the atmosphere. Furthermore, it becomes clear how the dew-still acquired the name of ‘brain’ or ‘wisdom’ – it was located at the top of the machine, and it would have had radial grooves running down its surface; these would have provided channels in which the water flowed, and would also have increased the area of cooled surface exposed to the airflow. Both these features – position and form – are analogous to those of the human brain.

So if the upper of the two inner skulls was a dew-still, what was the lower one? According to the texts it was called BINH



6.1 Schematic drawing of dew-still

(binah) usually translated as 'understanding'. In fact, the word binah means simply 'between-thing', tebunah being the usual word for 'understanding'; later, when the function of the Ancient of Days was forgotten, the meaning of BINH must have become changed. For as the centuries passed, the Reapers of the Holy Field came to think of these traditions as referring to processes going on inside the brain of God, not as the workings of a machine. 'Brain' and 'between-thing' were, as we shall see, merely physical descriptions of two parts; but as time passed they became converted into 'wisdom' and 'understanding'.

Here we come to the first of many sexual analogies in the *Zohar*. This passage describes the physical relationship of these two parts:

(LHA 221) Obviously the wisdom is extended, and the understanding goes out from it. It is found to be male and female. Wisdom is the father, understanding is the mother.

Previously, we have represented these parts as two spheres (see Figure 6.2).

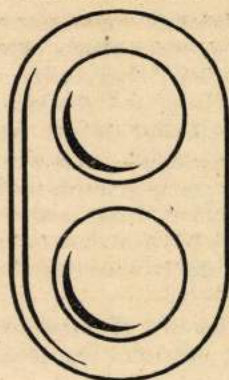
Clearly, from the text, wisdom protrudes into understanding as shown in Figure 6.3.

The understanding also contains the 'cardinal lamp':

(LHA 432) And [the ether] is contained there for the glittering things that go out from the cardinal lamp which is hidden in the bowels of the mother.

The cardinal lamp is another term for the spark, or the glittering eye. It will be described in greater detail later. The mother is also contained within the 'ether', which is therefore presumably identical with the outer skull containing the other two:

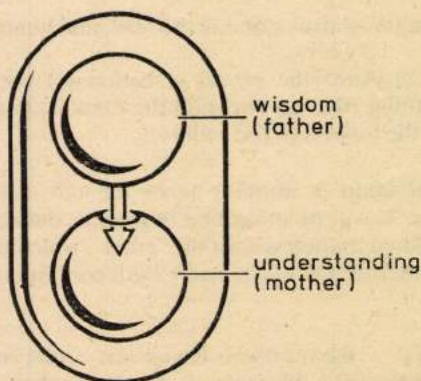
(LHA 651) . . . the mother is drawn out, and is contained in the clean ether. This whiteness holds the mother . . . and the spark enters and goes outwards, and this is connected to



6.2 The three skulls

that, and one part is then made. And when it is necessary, it goes up, that one above the other, and the one is then made to cover the other one in front.

The 'whiteness' referred to here is obviously the clean ether. This is clearly a description of a mechanical assembly operation, the mother being put into the ether, and the spark being put into the mother before it can 'go outwards' or shine.



6.3 Wisdom and understanding

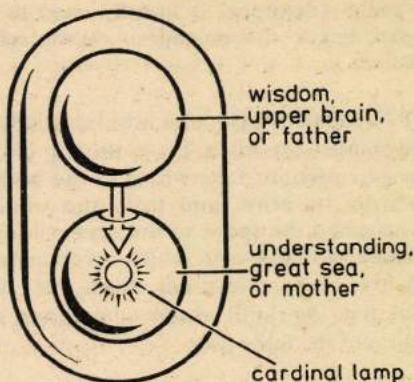
The word 'male' (dekhura) is usually used to mean the masculine organ, but in this passage it clearly refers to the 'father' or 'wisdom':

(LHA 709) The male is extended into knowledge, and the halls and assemblies are filled. From the top of the skull it starts and is extended into the whole of the body, from its breast and from its arms, and from the whole. To his buttocks is attached the spark of the cardinal lamp, and it lights up. And a skull goes out which is concealed from all sides. And the shiner descends from the two brains hollowed out in it [the skull]. And it [the shiner] is attached in the direction of the male part . . .

As will be shown, the upper wisdom or upper brain, the dew still, discharges its dew via the thirty-two paths of wisdom to the brain of the Small-faced One, which contains the 'halls and assemblies of knowledge'. So it is reasonable to assume that the male is here yet another term for the upper brain, or father, which projects into the understanding, or mother, which surrounds the cardinal lamp. If the shiner, or cardinal lamp, is attached 'in the direction of the male part', then it must be located at the end of the projection of the upper brain into the 'understanding', also known as the 'great sea' (see Figure 6.4).

So far, we have deduced a structure for the Ancient of Days from snippets of information which are to be found scattered all through the *Holy Assemblies*; the task is made slightly more complicated by the number of different names given to the various parts, but nevertheless the descriptions are very consistent. Once again we must ask the question: are these texts religious, or are they describing some physical structure in apparently religious language? And who could possibly have invented these traditions, if there never had been a real, physical 'Ancient of Days'?

We suggest that what must have happened is this: once upon a time, there *was* an Ancient of Days, a manna-machine which fed the Israelites in the desert. The priests who tended it devised these names for the various parts, and composed an oral 'operating manual' for the machine using them. The



6.4 The cardinal lamp

operating instructions then became a secret, holy tradition, handed on from generation to generation. In due course, the machine stopped working; later its original purpose was forgotten. It became a mere ritual object. Later still, it disappeared altogether – but the traditions continued; the operating instructions were still handed down from father to son. The meanings of the original technical terms were lost, and the material became more and more unintelligible to succeeding generations – who nevertheless did their best to preserve it; to make some sense out of it. Finally, a whole system of philosophy developed around the material, and new, philosophical meanings were given to what were originally technical words. And from this philosophy, there developed the curious set of mystical beliefs known today as Kabbalah.

Now, which is more incredible: that there was a manna-machine in ancient Israel, or that these extraordinary traditions were invented? Are we speculating, or have we hit upon the truth?

The books known as the *Holy Assemblies* contain most of the material on the Ancient of Days, in the form of a series of lectures about that being – but much of it is repeated in the *Book of the Mystery*, which we think may be the garbled remains of the very operating manual we have postulated:

(BoM 1:41) The father is at the top, the mother in the middle, and they are covered up like this and like that. Bad luck on the man who opens up their exposed parts.

(BoM 2:47) One skull is prepared. It is extended in its sides. Dew fills the upper of two similar (skulls).

The dew-still was known as *the* wisdom, or the wisdom of wisdoms; but the dew which came from it also bore this name, without the emphatic (*the*) suffix:

(GHA 858) And therefore wisdom flows and goes out — but this is not the wisdom of wisdoms, which is calm and still.

Here, the text is distinguishing between the dew, which flows, and the 'brain' from which it comes, which stays still, although both have the name 'wisdom' applied to them. Often, when the dew is meant, the word is plural — 'wisdoms':

(GHA 244) What is meant when it is written: (Prov. 1:20) 'Wisdoms cry without'? And then 'She uttereth her voice in the streets'. Why do the beginning and end (of this text) not agree (in number)?

It should be explained that wisdom is feminine in Hebrew, and the 'she' in the second part of the quotation refers to it. The text goes on to explain why this difference exists in the Proverbs quotation:

(GHA 245) 'Wisdoms cry without' is only said when it is drawn from the concealed brain, and one brain is made to work because (wisdom) has not appeared in the lower brain, only in the upper brain. And when it flows from this (brain) to that one, it is written: 'She uttereth her voice' — singular. And because it flows from brain to brain in those strands, those which are joined between the two brains, then one brain is made to work into those strands . . . so . . . that they may (all) be irrigated by the brain.

The use of the word 'irrigate' (ShQI) which occurs frequently

in the texts, makes it clear that the wisdom flowing in the strands (or hairs) was a liquid.

What is to be made of this explanation? 'Wisdoms cry without' must be a catch-phrase, which was used when 'wisdoms' had built up in the upper brain, but had not yet flowed down to the lower one. This phrase could mean: 'Wisdoms say: "we want to get out!"' The other half of the quotation could be interpreted as: 'She (the upper brain) lets out her voice (the dew) in the streets (or paths of wisdom)'. The reason why one is plural, the other singular, is that the plural 'wisdoms' refer to the dew, and the singular 'wisdom' refers to the upper brain or dew-still.

It may have been that as the machine was starting up priests anxiously watched the upper brain. When dew was seen to build up, they said to each other: 'Wisdoms cry without'. Later, when the dew penetrated to the lower brain, they said: 'She uttereth her voice'. We should explain that, in the King James Bible, wisdoms in the first part are translated as singular, even though they are plural in the Hebrew text. Many of the catch-phrases and codewords of the Ancient of Days traditions found their way into the everyday speech of the Israelites, and thence into the Book of Proverbs. In English today, when we say of someone: 'he is the fountain of all wisdom'; it is possible that we are referring to the fountains of the upper brain of the Ancient of Days, from which sprang the dew of heaven.

One of the greatest puzzles in the Bible is the Canticles, or the Song of Solomon. It is also something of an embarrassment to theologians, because much of the material in it is frankly sexual, and many feel that it has no place in a religious work. However, in spite of this, the Song of Solomon still appears in our Bibles, because it is acknowledged to be extremely ancient, if not actually the work of King Solomon himself. Nevertheless, parts of it are almost incomprehensible – perhaps they are a love poem, or perhaps . . . the *Zohar* offers us a clue:

(GHA 44) And from this skull there distils the dew, on the outside part (of the skull), and it fills his head every day. Of

which it is written: (Cant. 5:2) 'My head is filled with dew'. And from that dew that is discharged from his head, that (dew) which is for everyone, the dead are brought to life for the world to come.

As we saw earlier, bringing the dead to life was one of the properties ascribed to manna. The text goes on to emphasize that the quotation uses a word meaning 'it is filled', and not one meaning 'it is full'; here, we have a clear hint that the Song of Solomon may be a description – albeit garbled and diluted – of the Ancient of Days; if this is so, it is not surprising that the theologians find it difficult to interpret.

We have seen that the upper brain or wisdom was a dew-still, consisting of a cooled surface over which air was drawn. Warm, damp air was drawn in; cool, dry air was given out. In this way, it would also function as an air conditioner.

We must now work out the function of the lower of the two inner skulls, the 'understanding' or 'great sea'.

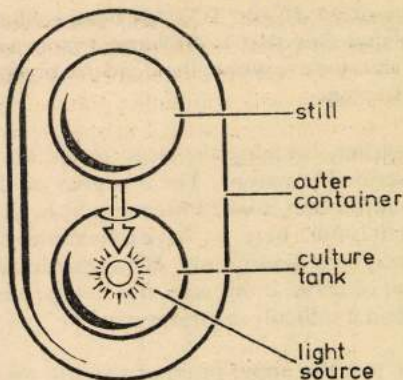
As we saw before, the dew ran down from the wisdom, via the skull of the Small-faced One, to 'water the plants'. But according to this quotation, it in fact returns to the 'depths of the sea':

(LHA 193) This flow that is conducted from (the brain) is uncovered. Those two conductors are collected in the one head of the depth of the sea.

This indicates that the flow went back to the 'great sea'; later, we shall find confirmation of this. Therefore, it is clear that the 'great sea' was the culture vessel in which the plants were grown. This is confirmed by the fact that it also surrounds the cardinal lamp, the light source which provides the energy necessary for their growth.

The upper brain is also known as the upper Eden, and this throws some light on a curious phrase in Genesis:

(LHA 104) And the upper concealed wisdom contains all of another. And this is called the upper, concealed Eden, and it is the brain of the Ancient Holy One.



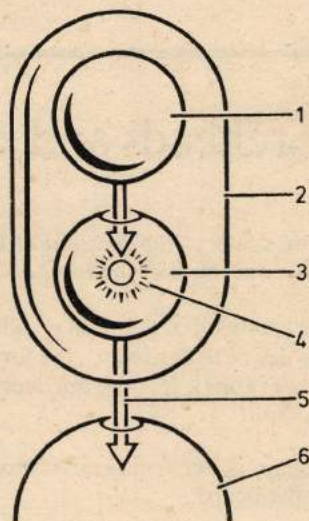
6.5 The technical interpretation

(LHA 251) In the school of Rav Yeyeva the Elder they teach as follows: why are V and D contained in I, and not the plants of the garden? Because this so-called V is another garden, which is D, and from this the D is watered. That makes four. And these (four) are the secret things of which it is written: (Gen. 2:9) 'And a river went forth out of Eden etc.' What is this Eden? The upper wisdom. And this I is for watering the garden, which is the V. 'And thence it is divided and goeth forth in four heads' . . .

This passage is somewhat difficult to follow, being full of code-letters, but it does explain one curious fact – why the river *went out* of Eden in order to water the garden. How could this be, if Eden *was* the garden? What the *Zohar* tells us here is that the garden in this passage of Genesis was not the mythical Eden occupied by Adam and Eve, but that in the Ancient of Days. The river went out of Eden (the upper brain) to water the garden (the great sea). In the Genesis legend, the garden and Eden were the same; in the Ancient of Days they were separate. It seems that when the book of Genesis was edited into its present form, an element of the manna-machine lore found its way into the story of Adam and Eve.

So far, we have hacked our way through a small part of the

dense undergrowth of the *Zohar*, and assembled a few facts about the Ancient of Days. Separate traditions from different parts of the books all tell the same story – a machine with a dew-still on top, and a tank containing plants underneath. At this point, we can summarize what has been learnt so far in a diagram – illustrated in Figure 6.6.



6.6 Summary

- 1 The wisdom, the upper brain, the upper Eden, the wisdom of wisdoms, the brain that appeases and is quiet, the father, the concealed brain or Eden.
- 2 The ether-skin, the clean ether, the window (or blister).
- 3 The understanding (or between-thing), the great sea, the garden, the mother.
- 4 The cardinal lamp, the spark.
- 5 The thirty-two paths of wisdom.
- 6 The brain of the Small-faced One, the lower brain, the lower Eden, the other Eden.

The foreheads and noses

After describing the skulls of the Ancient of Days, the *Zohar* texts continue with an account of the forehead of that being:

(GHA 89a) The forehead of the skull is called the Acceptor (ratzon). It is the desire of desires . . . the forehead is opened to receive the lower (one). It is the uncovering of the whole head and of the skull.

The forehead, it seems, is free from hair, although it is set back inside the hairs of the beard:

(GHA 103) Tradition: the hair does not exist in this place, because it is opened and it is not covered.

(LHA 111) And this Acceptor is extended downwards into the beard, as far as the place of (its) being seated in the beard . . .

What are we to make of this description? Clearly, the forehead is some type of access hatch:

(LHA 89) . . . the forehead . . . is opened into the lamp.

We have already seen that the lamp is located inside the lower

of the two inner skulls, the so-called 'understanding' or 'great sea'. It is therefore likely that the forehead opens into this skull, and not into the upper one, the 'wisdom'. This is supported by the fact that the 'wisdom' is described as being concealed and inaccessible; if there were a 'forehead' opening into it, it would not be so described.

The opening of the forehead, it seems, was a regular weekly event:

(GHA 91) 'And when (the forehead) is opened, the prayers of Israel are received. When is it opened?' Rabbi Simon stopped speaking.

He asked again: 'When?'

He said to Rabbi Eleazar his son: 'When is it opened?'

Rabbi Eleazar answered: 'At the time of afternoon prayers on the Sabbath'.

Rabbi Simon said: 'Why?'

He answered: 'Because at that time, on weekdays, judgement hangs below, in the Small-faced One, while on the Sabbath at that time the forehead called "Acceptor" is opened, the wrath is suppressed, the desire is found, and the prayers are received'.

What is to be understood from Rabbi Eleazar's explanation? 'Wrath', we shall see, is one of the codewords for the smoke from the nose of the Ancient of Days, in other words the exhaust. So if 'wrath' is suppressed, then there is no exhaust smoke, and the machine is not working. Likewise, we shall see that 'judgement' was a term applied to the physical dangers associated with the device, such as burns and electric shocks. If 'judgement' was present on weekdays, and absent on the Sabbath, then it is clear that the Ancient of Days functioned all week, but not on the Sabbath.

What are we to make of these descriptions? Whatever they are, they are not religious. They certainly give the impression of some kind of machine and one which was separated into two parts once a week. The 'forehead' was opened only on the Sabbath, the day on which there was no 'judgement' or 'wrath'. Rabbi Eleazar's explanation may seem total nonsense in the religious context, but as an engineering statement it

makes good sense – the ‘forehead’ should not be opened up when the machine is working.

Bearing in mind that ‘desire’ is another term for forehead, it seems that the Ancient One and the Small-faced One were joined together by their foreheads:

(GHA 89a) The forehead of the skull is the desire of desires. The desire of the Small-faced One is to contain that desire.

(GHA 595) At the time when . . . the face of the Ancient of Days shines into the face of the Small-faced One, and his (A of D’s) forehead shines to that other forehead, that time is called the time of the Acceptor.

And as we have seen, this was the time of afternoon prayers on the Sabbath; in GHA 95, Rabbi Eleazar quotes a reference to it in the Psalms:

(Ps 69:14) But as for me, my prayer is unto thee, O Lord, in an acceptable time [*or at the time of the Acceptor*].

We must ask ourselves: what is going on here, in this secret ceremony which is being described? What was it that the priests so carefully took apart and reassembled? Was it a complicated idol, or was it a manna-machine?

There would seem to be little point in stripping down and reassembling a religious effigy, but on the other hand a machine would require periodical servicing. Sooner or later, any biological culture becomes contaminated, and the vessels containing it must be cleaned and sterilized before starting a fresh batch. This would appear to be what is happening, from this description of the forehead of the Small-faced One:

(GHA 588) The forehead . . . is the inspection of inspections. And it is not uncovered except at the time when it is necessary for sinners [*or debtors*] to be examined, and to inspect their actions, and at that time when the prayers of Israel go up to before the Ancient of Days, and she requests mercy for her sons. Then the forehead that is the desire of

desires is opened, and it shines [*or flows*] into that of the Small-faced One, and judgement is appeased.

(LHA 496) The forehead . . . is the forehead for rooting out sinners according to their actions. And when this forehead is opened, the Lords of Judgements irritate those that are ashamed of their actions.

The Lords of Judgements are the priests responsible for removing 'sinners'; unwanted growths or deposits. After they have performed their task, the machine can be reassembled, on the afternoon of the Sabbath. It is not therefore surprising to find prayers for 'mercy' being offered at this critical time.

Perhaps the reference to irritating the sinners implies that a scraping action was used. It is easy to see how, if the manna went bad in the middle of the week due to improper cleaning, this might be attributed to the 'sins' of Israel causing the 'mercy' of the Ancient of Days to fail. In fact, the term 'judgement' may also have been used to refer to the manna going bad:

(GHA 682) But at the time when the hidden of hidden ones is uncovered, those lamps are made not to shine, judgements are excited, and judgement is made. What is it that causes that judgement? The desire of desires (when) it is not uncovered. And therefore the sinners change mercies to judgement.

'Sinners' change 'mercies' – manna – to something else; dirt and unwanted growths in a food-producing system change good food to bad food; failure to open the 'desire of desires' and clean the system out will cause bad manna to be produced. However, some manna was not bad enough to be rejected totally. When in English we tell someone to be 'thankful for small mercies', we are perhaps pointing out that indifferent manna is better than no manna at all; half a loaf is better than no bread. According to one tradition, the second-grade material was given to the 'mixed multitude', the non-Hebrew ragtag and bob-tail of Egypt who accompanied the Israelites into the desert.

In the descriptions of the foreheads, we have some supposedly ancient traditions which, on the surface, appear to be nonsense; and yet, when interpreted as a machine description, fit together extremely well. The two parts – the Ancient One and the Small-faced One – were joined together by their foreheads, but separated once a week on the Sabbath for the elimination of ‘sinners’. If this was not done properly, there was no ‘mercy’ or manna. By assigning technical meanings to ostensibly religious words, a clear technical interpretation becomes possible.

If the ‘time of the acceptor’ was on the Saturday afternoon, the next manna issue being due on the Sunday morning, it can be inferred that final reassembly was taking place at that time. This being a critical operation, it would have been at that time that the most fervent prayers for ‘mercy’ were offered up, for the reassembly would have had to have been completed by dusk, work being impossible by such artificial light as was then available. The Jewish Sabbath extends from Friday dusk to Saturday dusk, and the timetable can be reconstructed as follows:

Friday morning: Double manna ration issued, machine shut down and left to cool, tanks drained.

Saturday morning: Work begins at first light on dismantling and cleaning.

afternoon: Reassembly, with much prayer.

night: Machine switched on, its face lights up indicating proper function, general rejoicing.

Sunday morning: Single manna ration issued.

The noses

The Ancient One has a nose, and so also does the Small-faced One. The nose of the Ancient One has but a single nostril, and blows the ‘breath’, while that of the Small-faced One blows fire and smoke. Regarding that of the Ancient One:

(GHA 175) This nose, the nostril that is in it blows the breath of life to the Small-faced One, and they call it the ‘sprinkler (selichah)’. And it brings the breath down to

(where) it is sweetened, the breath that goes out of those tubes. Another breath goes out to the Small-faced One, so that it can be excited by him in the garden of Eden.

The garden of Eden is here yet another term for the lower Eden, or the brain of the Small-faced One. This description is repeated in LHA:

(LHA 136) The nose. In this nose, in the nostril tube that is in it, there blows the breath of life to the Small-faced One. And in this nose, in the nostril tube, there hangs the H, the H of life, which is different from the lower one. And this breath goes out of the concealed brain, and it is called the breath of life.

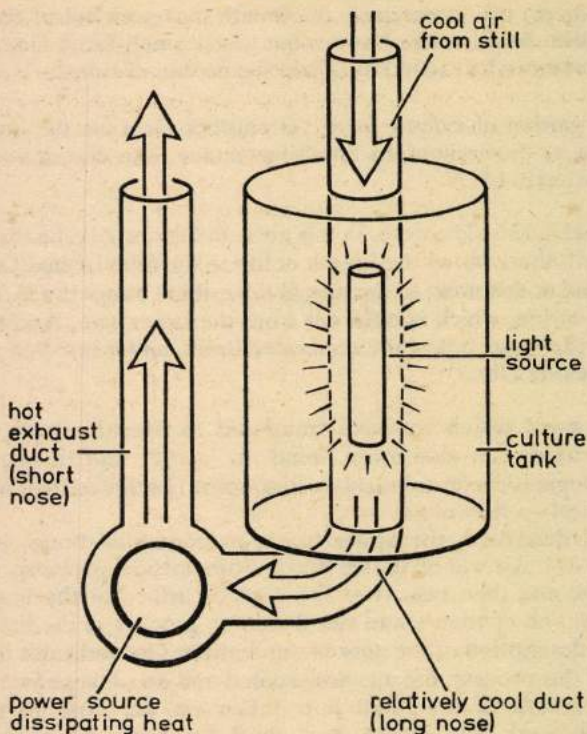
The word which we have translated as 'breath' is RVCh (ruach); it can also mean 'wind' or 'spirit', and of course theologians prefer to translate it as 'spirit'. In this context, it is physical – a flow of air.

As described, the upper brain, or concealed brain, is a dew-still. Air will be drawn into it from outside, probably via filters, and then pass over the cooled surface of the brain. Water will condense and run down the grooves in the brain. This description of the nose of the Ancient One indicates that after this process, the air, now cooled and dried, is known as the 'breath of life', and it is taken via the nose to the Small-faced One where it is used for some unspecified purpose. At a guess, it could be used for cooling the hot, internal parts, then being discharged as hot exhaust gases through the other nose, that of the Small-faced One. This process is shown in Figure 7.1.

The gas is also known as the H; like modern engineers, the Israelites designated many parts of their machine with letters, which of course are also numbers in their system.

While the nose of the Ancient One was a comparatively mild affair, with but a single nostril blowing the 'breath of life', the nose of the Small-faced One was fearsome:

(GHA 661) The nose . . . there are three twisting flames in its tubes. From this nose are extended three colours: smoke,



7.1 Schematic drawing of noses (ventilation and exhaust ducts)

fire, and coals of fire. For it is written: (2 Sam. 22:9) 'Smoke went up in his nose'. The smoke blows, and goes out. It is black and red, two colours. And they call it 'anger', 'heat', and 'destruction'.

The nose was directed upwards:

(GHA 686) This nose is short. And when the smoke rises to go out, it goes out in haste, and judgement is made . . . (2 Sam. 22:9) 'Coals were kindled by it'.

The nose is clearly an exhaust, discharging upwards for safety. This is the reason why there was no roof on the Tabernacle, as described in Exodus. The observation that it would kindle coals must have been made at great personal risk by a priest balanced precariously on the machine while it was working. From this, we can estimate the exhaust temperature – it was at least 350°C.

The two noses are said to have been of different lengths:

(LHA 572) The nose of the Ancient Holy One is long, and is extended. And he is called Long-nosed One (arik aphim). But this (other) nose is short, and when the smoke begins, it goes out quickly, and judgement is made to work.

In other words, the smoke comes out of the exhaust soon after switch-on, and thereafter a 'judgement' comes upon anyone who ventures too close.

The difference in length between the two noses may also have given rise to two of the titles of the two parts; for the words for face and nose are the same. The title 'Small-faced One' could also mean 'Short-nosed One', and as the above quotation states, the Ancient One is also known as the Long-nosed One.

The dual form of the word, aphim, means face or nose, but in the singular – aph – it means anger. Perhaps because of this, the term 'long-nosed' also means 'slow to anger', since the wrath was seen as smoke coming from the nose of the enraged person. The longer the nose, the longer it took for the smoke to come out, and the slower the person was to anger. This interpretation could explain why as a result, the Ancient One, who had a long nose containing the harmless 'breath of life', was seen as a very even-tempered being, while the Small-faced One, who fiercely snorted fire and smoke, was thought of as short-tempered.

Sacrifices were of course made before the Ancient of Days. Perhaps the priests thought that if the machine saw their smoke and fire, and smelt the good smell of the sacrificial animals roasting, then he too would give off smoke, fire and a good smell, and once again there would be mercy upon Israel.

The mystics identified two great principles in the Ancient of

Days – ‘mercy’ and ‘judgement’. Mercy, as we have seen, was the name for the manna, the heavenly food which was available in abundance provided that the procedures were properly carried out by ‘just men’ who ‘knew the paths’, that is to say, who understood the plumbing and wiring. Judgement, on the other hand, befell those unfortunate enough to make a mistake in handling the machine; for it obviously must have contained an extremely powerful energy source. It seems that if anyone who did not know the paths attempted to work on the machine, and managed to avoid getting severely burnt by the fire and smoke from the nose, or by the hot, exposed parts, he would soon succumb to a lethal electric shock or radiation poisoning, or be blinded by ‘looking upon the face of the Lord’; for, according to our calculations, the brightness of the ‘cardinal lamp’ would have been several hundred times greater than that of the Sun if viewed directly from a short distance. Only the priests, who had attended an operator’s training course, could handle the Ancient of Days with safety; and even then, there were still accidents:

(LHA 704) . . . one day as I was replacing the surrounds of the king in the cave of Maronia, and I saw a lantern of fire lighting up his face . . . and from that day on I was frightened and was cautious in my knowledge of him; and thereafter I avoided them all my days.

This is given as a description of a ‘vision’ seen by Rabbi Simon in the cave; however, it is probably based on a much earlier tradition. We shall see that the ‘surrounds of the king’ are the cover-plates of the Small-faced One.

The venerable beards

The beards of the Ancient One and the Small-faced One are among their most prominent features, and both *Holy Assemblies* devote a large amount of space to them. To the mystics, these great beards indicated that the Ancient One and the Small-faced One were venerable persons, their luxuriant growths indicating great age and accumulated wisdom. This misapprehension may have been the original cause of the title 'attik (OThIQ) being translated as 'Ancient', when as we have seen it can equally well, and more likely here, mean 'transportable'. However, as we shall see, there are many traditions concerning the beards which indicate that they are not the facial growths of holy personages, but the pipes and wires of a complex machine.

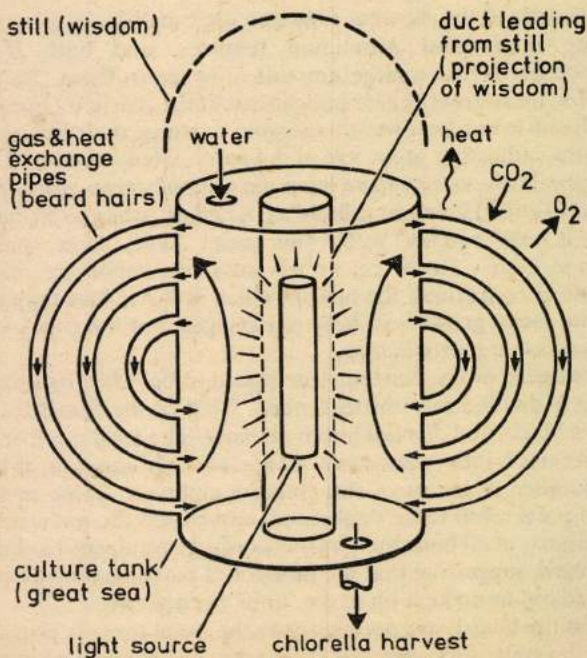
The beard of the Ancient One is said to be 'white as snow', and it is divided into thirteen parts. That of the Small-faced One is black, and divided into nine parts. The total number of beard parts is thus twenty-two, which is a 'holy' number, as it is the number of letters of the Hebrew alphabet. Some of the beard parts seem to be duplicated, and others are not strictly beard parts at all but simply remarks of a general nature about the beard, suggesting that the number of parts may have been padded out to make it up to the 'holy' twenty-two.

That the beards are not beards in the usual sense is obvious from the start; some parts of them grow out of one part of the

face, and back in again at another; others go right inside the body; some parts consist of a number of hairs, others of only a single one. The beard of the Ancient One is also known as the 'inflow (mezla)', and in its hairs there flows the 'oil of great goodness'.

We have deduced that the lower of the two skulls of the Ancient One, the 'understanding' or the 'great sea', was a tank containing a culture of water plants. In the middle of it there was a lamp which emitted an intense light, and a 'forehead' opened into it which gave access during the weekly servicing operation. The forehead was hairless, but was surrounded by the hairs of the beard; by implication, then, some of these hairs sprouted from the 'great sea', or culture tank.

In order to grow, the plant culture would need to have



.1 Schematic drawing of culture tank

access to the atmosphere, so as to be able to absorb the carbon dioxide it needed and give off the oxygen produced. It would also need to be cooled, if in its centre there was an intense light source, which would necessarily also produce heat. Both atmospheric access and cooling could be provided by allowing the plant culture to circulate through pipes projecting from the tank, by using the *thermosyphon* principle. In this arrangement, the liquid at the centre, close to the light source, becomes warmer, and rises, moving outwards into the upper parts of the cooling loops as shown in Figure 8.1. Here, gas exchange and cooling take place, and the liquid becomes denser and sinks, returning via the loops to the lower part of the tank. The pipes would need to be made of a material which allows gas molecules, but not liquids or solids, to pass through it – such a material would be pierced by numerous microscopic holes. Such materials exist in nature; the membrane which surrounds a chicken's egg inside the shell, and the tissue of the lungs, for example.

In Figure 8.1, we show three sets of pipes, an arrangement which makes good use of the air circulating round them. The texts refer to the longer and shorter 'days', 'days' being one of the names for the beard hairs, which suggests that such an arrangement was in fact used in the machine. The technical aspects of the design are discussed in greater detail in a later chapter.

(GHA 229) In these thirteen parts (of the beard) do they pour and go out, the thirteen fountains of oil of great goodness. And they pour [*or flow*] with that oil, and they are anointed [*or oiled*] with that oil, which is in the thirteen parts.

'Oil' would be a good descriptive name for the plant culture, the greenish sludge of water and microscopic plants.

Each part of the beard has a code-phrase associated with it, presumably to help the Reapers to memorize all the details. For the thirteen parts of the beard of the Ancient One, the thirteen mnemonic phrases comprise the last three verses of the book of Micah (Micah 7:18-20). It could well be that those three verses were not originally part of that book at all.

Code-phrases also exist for the nine parts of the beard of the Small-faced One, but the rabbis differ as to the correct version of these.

The beard of the Ancient One has a number of names, including 'upper mercy', 'inflow', and 'dignity'. The word 'dignity (yakkira)' in fact means: 'that which is most important', because the beard was recognized as being a most essential part.

Unlike human beards, that of the Ancient One surrounds his head completely:

(LHA 310) All things are one; the father and the mother (wisdom and understanding), they contain and are connected one to the other. And the father binds more (tightly). And the whole is united in the Ancient Holy One. And it hangs in the holy inflow, the dignity of dignities.

(LHA 172) And the upper mercy is extended and shaped, and the whole thing is filled by this concealed brain . . . there are three upper heads – two heads and one that contains them. They hang in the inflow and are contained in it.

The beard hairs which surround the head, the circulating loops, are identified with the thirteenth part of the beard, and they surround all the other twelve:

(GHA 483) And because this (thirteenth) part includes all (the others), . . . nothing is seen of them. And from them, there runs the oil of great goodness in thirteen directions to all those lower (parts) which flow with that oil. . . . And those parts that are in the beard are shaped and go down in many directions. And it is not seen how they are extended and how they go out. They are concealed from all, they are hidden from all. There is none who knows the place in the Ancient One to which they extend. All of them are enclosed . . .

From this passage we can imagine the difficulties that the Israelites would have experienced as they peered in through the maze of pipework in their efforts to trace the plumbing. It

is interesting to note that the texts are consistent in that the parts of the machine which we would expect to be visible on inspection are in fact those described, and that the vaguer descriptions relate to those parts which we would expect would be more difficult to get at.

The code-phrase for the thirteenth part of the beard (Micah 7:20) is 'days of old', or in our translation 'first days'. We have already deduced that the 'days' of the title 'Ancient of Days' should in fact be translated as 'tanks', and here is confirmation of it; the texts tell us that the beard parts contain liquids, and that they are known as 'days'.

In spite of the difficulties mentioned in the last quotation, the Israelites did obtain some information about the other twelve parts of the beard. The first part, for example:

(GHA 215) . . . includes . . . that part of the hair of his head that is arranged to go down to above his ears, and which goes on down in front of the ears in one thread . . . as far as the top of the mouth.

The description continues with some material which sounds remarkably technical:

(GHA 292) And the beginning of the first part is thirty one balanced locks, which are extended as far as the top of the mouth. And three hundred and ninety strands are found in every lock . . . and in every lock there are distributed thirty one worlds which are able to control, that are visible. . . . The first world . . . controls . . . a thousand thousand and a myriad myriad Lords of Shields. The second world . . . controls . . . seven and fifty thousand paths of Lords of Alarm . . . the third world . . . controls . . . ninety-six thousand Lords of Wailing.

Whatever this passage is about, it is clearly not religion. It is a description of some complicated structure, using various terms of unknown meaning. The word 'world', for example, 'olama (OLMA), has a large number of possible meanings such as 'eternity' and 'secret'. Here, from the context, we can see that it means a 'part', possible '(secret) part', because its

function is not known apart from that it controls the 'Lords'.

There are many 'lords' in the *Zohar*. In some places, it is clear that the author makes up a phrase using 'Lord (ma'ar)' when he cannot think of the correct word. For example, in LHA 779 'Lords of Shields' is used with the obvious meaning of armed men, and in GHA 1165 Rabbi Simon refers to Rabbi Elihu, who arrives suddenly in a dishevelled condition after a long journey, as a 'Lord of Hairs'. The word BOL (Ba'al) is used similarly in modern Hebrew.

The first part of the beard is of interest in that it is imitated by devout Orthodox Jews even to this day. They wear a single curl of hairs hanging down before the ears, as far as the mouth. Whatever the official attitude to the Ancient of Days, many Jewish customs are obviously derived from that strange being.

Regarding the second part of the beard, the texts give no details except that it:

(GHA 216) . . . [goes] from the top of the mouth as far as the other top of the mouth, in a balanced manner.

The third part of the beard is of interest in that its code-phrase (Micah 7:18) is 'passing over transgression', and it would be tempting to term it the transgression bypass pipe. Regrettably, there is not enough evidence available at present to justify this. It goes:

(GHA 217) . . . from the middle of underneath the nose, from underneath the two tubes. One path goes out, and the hair is interrupted in that path, but it fills (the face) from this side and from that side.

There is a remarkable tradition connected with this part:

(GHA 376) Tradition: at the time when this (third) part of the beard of the Ancient of Days is opened, all the Lords of Wailing and Alarm and the Lords of Judgement are concealed and are shut down, and there is not (one of them) that will begin to be free to cause decay. Because this path is opened for repairing. And . . . it is the path which stirs the fire and is illuminated, and is for shutting down.

The parts of the beard are in general described starting at the top and working downwards. It is therefore interesting to find that Rabbi Chiya states (GHA 365) that the code-phrase for the third part should not be OVBR OL PShO, 'passing over transgression', but OVMD OL ShPO, 'standing over the overflow'. This part of the beard is in fact above the fourth part, which is below the mouth, and its code-phrase is 'the remnant of his heritage (ShARITH NChLThV)'; it is known as the 'remnant' for short. Now this word 'remnant' can also mean overflow, and NChLThV could also derive from NChL, a river or flow of water. So it does seem very likely that the code-phrases were at one time descriptive of the parts to which they refer, and more and more we are forced to conclude that these texts are not about religion, but about plumbing.

Regarding the fifth part of the beard, nothing is known except that it 'goes out beneath the mouth', and its code-phrase is (Micah 7:18): 'He hath not kept his anger for ever'. The sixth is:

(GHA 220) a hair shaped to go up and go out from below the top of the mouth to above it, and to cover the place of the good smell, as far as the upper top of the mouth. And the hair goes down to the start of the beginning of the path, below the mouth.

This appears to be a single pipe, which follows a complicated path, then returns to its starting point. The 'places of good smell' may be vents through which fumes from the processing of the manna were discharged; elsewhere they are stated to be in the cheeks. In GHA 399, this part of the beard is possibly identified with the 'corner' of the beard that priests should not cut off (Lev. 21:5), since to do so would interfere with the flow of 'mercy'. Its code-phrase is in fact 'because he delighteth in mercy'.

The seventh part of the beard is not a part as such, but an observation:

(GHA 221) The hair stops, and two apples are seen in the place of the good smell. They are beautiful and joyful to see,

because the world is made to live by them. As it is said (Prov. 26:15) 'In the light of the king's countenance is life'.

The reference to apples appears out of place, until we note that the Hebrew word for apple – *tepuch* – could also mean 'blower'. So what this part of the text says in fact is: there are no pipes, and two blowers are observed to function in the place of the good smell, discharging manna-processing fumes. When they appear, it is a good sign because the manna will soon be available. These are probably the 'apples' of the 'field of holy apples', the field from which the Reapers garner the harvest of manna.

The code-phrase for this part is: (Micah 7:19) 'He will turn again, have mercy on us (*yoshuv, yerachamnu*)', and this may suggest that the vents or blowers were used as an indicator of correct function. When a waiting priest smelt the appetizing aroma from them, he would say: '*Yoshuv, yerachamnu*', meaning: 'He's going to return (to work), he's going to have mercy on us'. The texts emphasize that for a plentiful supply of life, goodness, mercy, blessing, or in other words, manna, the apples and the face must be lit up. The blessing: 'The Lord make his face to shine upon thee' is cited as an example of this.

The eighth part of the beard is known as the 'inflow', but this title is also applied to the whole of the beard. It is:

(GHA 222) One thread of hairs [that] goes around the chin, and they hang in balance to the navel.

Its code-phrase 'He will subdue our iniquities' is not very helpful, and there is little to be learnt about this part except that it may be the 'inflow' – input pipe – for some other part.

The ninth part consists of:

(GHA 223) The hairs of the beard [that] are interwoven and are mixed with those hairs which hang in balance, and which do not go out one above the other.

(The 'hairs which do not go out one above the other' are the eleventh part.) Rabbi Abba gives an admirably concise technical description in which he makes it clear that this part is a drain-cock:

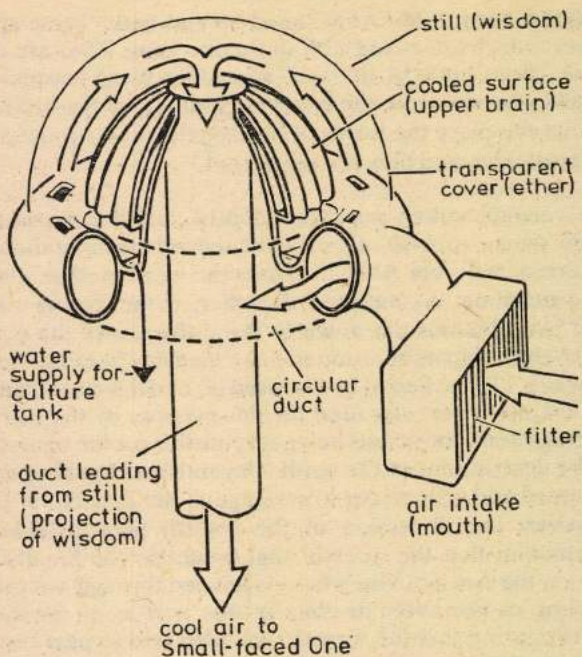
(GHA 439) Rabbi Abba stood up and said: 'These are the hairs which are mixed with those that hang. They are called the "deep parts of the sea" (metzilot yam) because (the part) goes out from the residues (mothar) of the brain, and from this place the Lords of Investigations throw out all the sins of men, and they are tipped out.'

The word metzuloth can mean 'depths', but it can also mean 'chaff, refuse, rubbish'. Clearly, the second meaning should be preferred, as Rabbi Abba also uses the word mothar with the same meaning. As mentioned earlier, if the manna culture went bad, this was put down to the sinfulness of the people, and so the unpleasant residues in the machine became thought of as 'sins'. These had to be disposed of, and it is clear from this that the ninth part was used for this purpose by the Lords of Investigations, the priests being responsible for the operation.

The descriptions of the tenth, eleventh and twelfth parts of the beard add little to our knowledge of the Ancient of Days. However, the discussion of the twelfth part includes the information that the 'breath' that passes to the Small-faced One via the Ancient One's nose is inhaled through the mouth, enabling us positively to identify that part as an air intake. Remembering that the 'breath' was also said to pass through the upper brain, we can now draw a part of the air-circulation system within the machine: Figure 8.2. The air is made to flow upwards over the outside of the brain from a circular duct surrounding it connected to the mouth, and out from it via a hole at the top. This arrangement gives maximum efficiency, since the air flow opposes the water flow from the grooves in the brain.

The diagram shows filter pads in the 'mouth', or air intake, since these would be necessary to exclude dirt, and in addition GHA 457 states that the mouth is 'concealed'. There is further discussion of the mouth in Chapter 9.

The thirteenth part of the beard, known as the 'days of old', has already been discussed. This is the most prominent of the parts, the array of cooling and ventilating coils which surrounded the 'great sea', through which the culture medium circulated. The other twelve, it seems, were other pipes or groups of pipes associated with the body of the machine, which



8.2 Arrangement of still (*cf* Figure 6.1)

had to be disconnected and reconnected at the weekly service. The thirteen code-phrases were probably devised to make sure that these operations were done properly, and in the correct order.

Throughout the texts, it is emphasized that all the parts of the beard were necessary if the supply of 'mercy' was to be maintained:

(LHA 666) And when the world needs mercies, the holy inflow is opened, and all the parts that are in the beard . . . from all of them mercies are drawn out.

In GHA 731ff, there is a discussion of the quotation:

(Hab. 3:2) O Lord, revive thy work in the midst of the years.

If the rabbis of the *Zohar* are to be believed, the 'years' here are the same as the beard-parts or 'days'; and in the midst of them lies the body of the Ancient of Days. The 'work in the midst of the years', then, refers to the operation of the body; and the prophet Habakkuk is voicing a plea to the Ancient One to start working again, and resume production of 'mercy' for the people.

The beard of the Small-faced One

While the Ancient One has thirteen parts to his beard, the Small-faced One has a mere nine, as would befit a lesser personage. However, there are some doubts as to this figure, and even as to whether the beard exists at all. In fact, as described, the nine parts are virtually identical with nine of the thirteen of the Ancient One; so it is possible that they are a later invention, so as to bring the total up to the holy figure of twenty-two, and to ensure that the Small-faced One has a beard, in keeping with his status. Whether the beard originally existed, or whether it is a later invention, there are still some additional technical details given which are worth mentioning. For example, the first part of the beard, corresponding to the first part of that of the Ancient One, is said to have a connection with the cardinal lamp:

(GHA 764) The hair is formed from above, and that spark goes out (which is) the cardinal lamp. And it goes out from the containment of the clean ether. And it kicks into (that which is) underneath the hair of the head [*or top hair*] from underneath the locks which are above the ears. And it goes down before the opening of the ears . . .

Likewise, the ninth part of the beard of the Small-faced One is said (GHA 773) to have hairs which are 'ma'ari netzach kerevin'. According to Mathers, this phrase could mean: 'Lords of Victory in Wars'. On the other hand, it could equally well mean: 'controllers of the juice of the inside parts'. Theologically speaking, it is nonsense to suggest that a god might have such 'Lords' forming part of his beard; however, a

man-machine certainly needs something to control the juices inside it.

There are two versions of the code-phrases for the nine parts of the Small-faced One's beard, taken from Ps 118:5-9 and Num. 14:18. Of these, the Numbers passage is of interest, since it is closely parallel with the Micah passage which is the collection of code-phrases for the other beard. It starts 'Adonai arik aphim ve-rav chesed', which the King James Bible renders as 'the Lord is long-suffering and of great mercy'. However, according to the *Zohar*, ARK APIM is one of the titles of the man-machine, and in GHA 872 it states that 'great mercy' was a title sometimes applied to the beard, as well as to the manna it produced.

Neither the passage in Micah nor that in Numbers makes much sense in the original Hebrew. However, if they are in fact simply collections of code-phrases, checklists of parts of the machine, then they need no longer puzzle us.

The head hairs

We have seen that the beard-parts of the Ancient of Days were external pipes bearing various liquids associated with the manna-making process. Code-phrases were assigned to them, so that they could be more easily memorized in the correct order. However, in addition to the beard-hairs, there were also head-hairs. While the beard hairs were 'strong' or stiff, and individually separated, the head hairs were soft, and arranged in locks:

(GHA 820) Tradition: all those strands that are in the beard are strong, more so than any of the strands of the locks of the hairs of the head. And the hairs of the head are long; and they bend, and they are not long.

What is more, it seems that the so-called head-hairs actually extend inside the head:

(GHA 570) Tradition: in the skull of the head there hang a thousand thousands, myriads and myriads, great quantities of locks of black hairs, and they are interlaced this with that, and they are mixed this with that. And there is no counting

the strands of each lock, and of the lock that is connected to it. There are clean ones and dirty ones.

What better description could be written of a tangled mass of electrical wiring, with the wires tied together in bundles or cableforms, making it very difficult to trace the connections? It seems clear that these wires are even referred to in the Song of Solomon, as the *Zohar* notes:

(GHA 834) As it is said: (Cant. 5:11) 'His locks are bushy (taltalim)', [or 'curls of curls (tali talim)'].

There is a clear reference to their being tied together in curls or bundles.

The texts also attempt to differentiate between the white hairs of the Ancient One, and the black hairs of the Small-faced One; however, this distinction seems to be artificial, as both sets of hairs appear to extend through both bodies. The hair of the Ancient One is said to be 'like clean wool' – this description also appears in the Song of Solomon. However the word for wool is OMR, the same as an omer; and this confusion could have arisen from the clean omer measures used to collect the 'mercy' from the Ancient of Days. Equally, omer can mean 'to bind', and the word could refer to cableforms, bound sheaves of cables inside the machine.

The most convenient way of controlling any machine is by using electrical signals. Wires can be cut to length, bent and connected much more easily than, say, the pipes needed for hydraulic control systems. Therefore it would not be surprising to find that our manna-machine also uses electricity, and we have in the *Zohar* a description of wiring which, in our opinion, is clear enough to be identified as such.

There is also an overt Biblical reference in Daniel 7:9, as we mentioned in Chapter 3:

I beheld till the thrones were cast down, and the Ancient of Days did sit, whose garment was white as snow, and the hair of his head like the pure wool . . .

The Rabbis explained all this with their customary ingenuity. According to the *Talmud* (Chag. 83):

One verse says: His raiment was white as snow, and the hair of his head like pure wool (Dan. 7:9) and (elsewhere) it is written: His locks are curled and black as a raven! (Cant. 5:11) – There is no contradiction: one verse (Dan. 7:9) refers to God in session (*i.e.*, sitting in judgement) and the other in war . . .

Further structural details

The glittering eyes of the Ancient of Days

The rabbis of the *Zohar* were able to cope with the skulls and the hairs of the Ancient of Days without too much difficulty, but when they came to the eyes, they had problems. What they were trying to do was to interpret the ancient traditions as a description of a godly being. We know now that there is enough evidence to confirm it was a machine; but the rabbis did not, even if they could have understood what we mean by the word. According to the traditions, the Ancient One had but a single eye, right in the middle of his head, which shone with a blinding brightness, while the Small-faced One had three eyes, of different colours, which did not shine with their own light. There was no easy way in which the rabbis could reconcile these descriptions with a god-being of reasonably human appearance, and so the texts are full of extraordinary arguments. For example, the upper eye does not have an eyebrow or eyelid; how to account for this? Well, they knew that the eye was essential for the supply of 'mercy', so:

(GHA 115) . . . everything that brings mercies has no cover over the eye, neither does it have an eyebrow over the eye. Then how much less does the white head require protection . . . how much more is this (absence of eye protection) true of the Ancient of Days . . . who watches over all, by whom all are fed, and who does not sleep.

Another disturbing fact was that the Ancient One had only a single eye:

(GHA 121) Although there are two eyes, they are whitened [or dazzled] into one . . . (134) Tradition: this eye is not concealed; and those two are whitened into one. All of it is right; there is no left.

Mediaeval Kabbalists – and later ones too – spent much time poring over this question of the eye. After prolonged deliberations, they came to the conclusion that the Ancient One was a face seen in profile, such that only one eye was visible. However, they then had to account for the statement that the two eyes ‘dazzle’ into one, so they had to add that the profile view was so accurate that the two eyes were seen to coincide precisely. This, of course, would only be possible if the head – or at least the bridge of the nose – were transparent, an absurd conclusion, but perhaps nearer the truth than they imagined.

If the Ancient One was seen in profile, then the Small-faced One was seen full-faced – but the Kabbalists delicately avoided the question of his *three* eyes.

We now believe that we are discussing a machine, and that the number of its ‘eyes’ was dictated by engineering considerations, not human physiognomy. We do not need contorted arguments like these to account for the existence of the traditions.

The text continues with a list of names for the upper eye, and yet further confirmation that it was the source of ‘blessings’ or manna:

(GHA 137) And therefore is it called: the open eye; the upper eye; the holy eye; the eye that watches; the eye that neither slumbers nor sleeps; or the eye that is the protection of all. And about it this is written: (Prov. 22:9) ‘The good eye shall be blessed [TVB OIN HVA IBVRK]’. Do not read: ‘shall be blessed [IBVRK]’, but ‘shall give blessing [IBRK]’. For it is called the bountiful eye, and from it there are blessings for all.

Here, it is suggested that we should delete one Hebrew letter from the Biblical text, and read it to mean that the eye was the source of blessings. The whole of this verse then becomes:

The good eye gives blessing; for it gives its bread to the poor. There again is the association of this eye with blessing, bread, or manna.

The upper eye is the source of illumination for the machine, the intense light source which we have already identified as the cardinal lamp. It illuminates three 'whitenesses':

(LHA 116) This brain is hollowed out, and (the eye) lights up three whitenesses above the eye.

How can we interpret these whitenesses? If the light is to provide the energy for a *Chlorella* culture to grow, it must be diffused in some way to illuminate the culture tank properly. Perhaps the whitenesses are diffusers which act to throw the light radially outwards through the 'great sea':

(GHA 123) The first whiteness shines and goes up and down . . . Tradition: this whiteness shines and kicks, and it illuminates the three lamps . . .

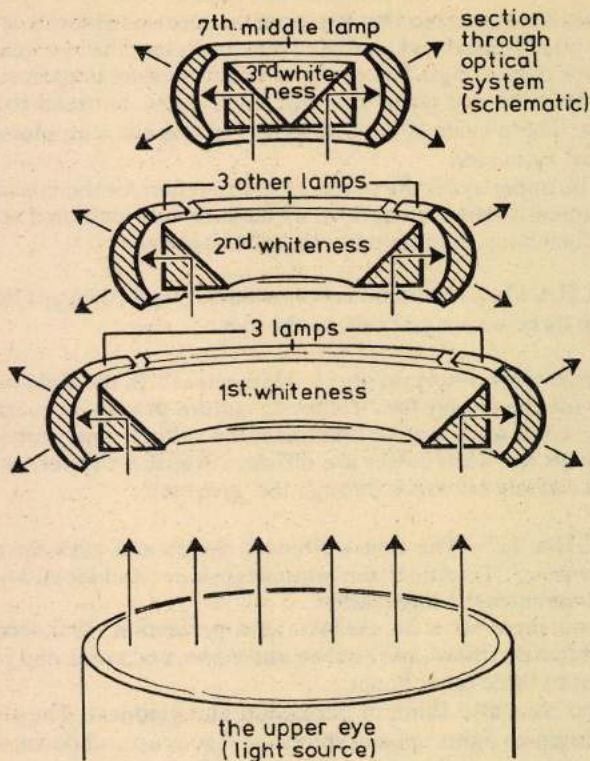
And these shine in gladness and perfection. The second whiteness shines, and goes up and down, and kicks, and goes out to three other lamps . . .

and they also shine in perfection and gladness. The third whiteness lights up, and shines, and goes up and down, and goes out from the concealed part of the brain . . .

And a path goes out to the lower brain. And all the lower lamps are caused to light up.

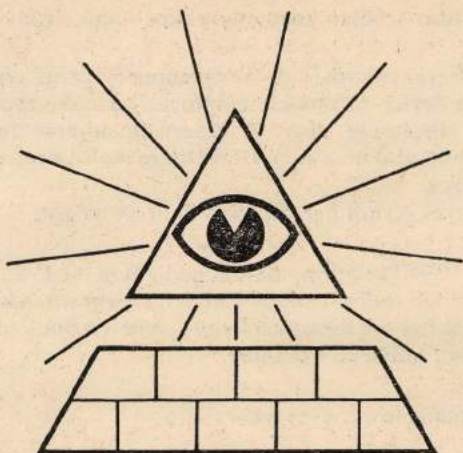
The 'whitenesses' seem to be a diffuser system, such as is shown in Figure 9.1. The lamps referred to in this quotation are lesser lamps, not the cardinal lamp or upper eye itself. The term 'cardinal lamp' is our translation of the Zoharese term 'botzina dikaradinutha', which we think derives from the Latin word *cardo*, *cardinis*, a hinge, or 'that upon which all things depend', such as a cardinal in the catholic church. The upper eye is also known as the Eye of Providence (see Figure 9.2), and under this name it is frequently mentioned in

THE ANALYSIS



9.1 The light diffuser system (schematic interpretation of GHA 123)

Masonic rituals. Modern Masons, like ancient Reapers, spend much time memorizing details of the Ancient of Days. Many prominent people associated with the founding of the United States of America in 1776 were Masons, and through them, the Eye of Providence found its way on to the back of the one-dollar bill. Here, it can be seen shining out of a triangle, above the truncated pyramid which symbolizes the stability of the New Order.



9.2 The Eye of Providence

The lower eyes

If the upper, single eye of the Ancient One was the light-source of the manna-machine, what were the lower eyes? As the texts admit, they are somewhat unusual:

(GHA 607) The eyes of the (Small-faced One's) head are different from other eyes.

This is followed by a passage which has defeated all previous translators, but here is our version:

(GHA 607) . . . the sticky substance [ShRQVThA] that is in the reservoir [GBThA] which is over the eyelids [RISI] paints [KChL] over the eyes, so that all the eyes are painted in blackness.

How can we explain this? ShRQVThA is from ShRQ, to paint, which also gives rise to the word ShIRQA, viscous substance. Jastrow lists GBThA as reservoir, little tube, or channel, while KChL also means to paint; many people will

know of the Arabian cosmetic paint 'kohl', from the same root.

Two different words with the meaning of 'paint' occur in this passage, a device commonly employed to make the intended meaning absolutely clear. A reservoir suitable for storing liquid paint is also mentioned, and there is also a reference to a colour, black.

These eyes do not light up with their own light:

(GHA 139) Tradition: there is no light in the lower eye; it is subjected to redness and blackness, except when it is seen in the white light of the upper eye . . . and it is not known when this upper holy eye will shine.

But how many lower eyes were there?

(GHA 149) In his lower eye there is a right eye and a left eye, and those two are in two colours. . . . But (in the upper eye) there is no left eye, and both of them go up in one path, and the whole (eye) is right. . . . but it is not like this below, (where) the eyes contain redness, blackness, and whiteness, 3 colours. They are not always open . . .

(GHA 619) When his eyes are open, they are said to be beautiful like those of doves, in red, black and yellow.

The text continues by describing the three 'colours' of the eyes; so we are forced to conclude that there were in fact *three* eyes, of these different colours, and the confusion evident in parts of the texts was caused by the rabbis trying to skate round this uncomfortable fact.

So, there were three eyes, of different colours, which did not shine, and which contained liquids. What could be their function?

(GHA 659) Tradition: in these eyes, in two of their colours, in the red and in the black, there reside two tears. And when the holiest of holy ones wishes to be merciful to Israel, he lets down the two drops to be sweetened in the great sea.

Before any 'mercy' or manna was made, the 'tears' had to go down to the 'great sea', or culture tank. Furthermore, the word, 'sweeten' – besem (BSM) – also means 'ferment'. It seems likely that the 'tears' were drops containing *Chlorella* for seeding the tank, and mineral salts necessary for nourishing the plants. Once these had gone into the great sea, already filled with water, the manna-making process could get under way. This would have irresistibly reminded the Israelites of the fermentation of beer or wine, for bubbles of oxygen would have been continually forming in the culture, and rising to the top of the tank to be discharged through safety valves.

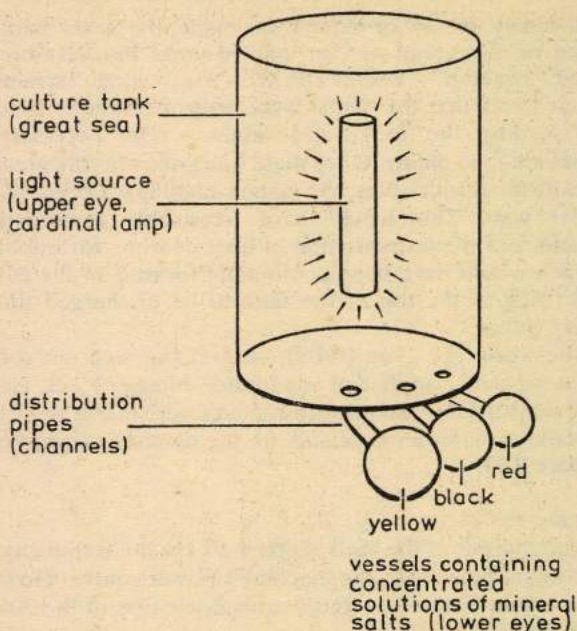
The word 'eye', 'ain (OIN), also means 'well' or 'source'; the word can be applied to any round, shining object. There is little doubt, then, that these lower eyes were in fact small tanks containing materials necessary for the manna-making process (Figure 9.3).

The fire-vessel

In our analysis of the texts, so far we have not found anything that might have been the machine's power source. However, after Rabbi Simon has finished his discussion of the Ancient One, he has a 'vision':

(GHA 494) Rabbi Simon said to his companions: 'So the curtain is split which you see above us. I see that all the parts are going down inside it, and they are shining into this place. And there is a covering over the lamp of the Holy One – blessed be He! – which is split into four supports in four directions. One support is placed from bottom to top, and there is a fire-container in its hand. And in the fire-container there are four keys [*or* openers], sharpened [*or* toothed] on all sides. And they connect to the cover, and go down to it from top to bottom. And thus (also) for the second, third and fourth supports. And between the supports there are connected eighteen feet of supports, and they are made to shine into the lamp that is hollowed out in that cover. And so (it is) in four directions.'

The Holy One – blessed be He! – is the usual Jewish term for



9.3 The lower eyes

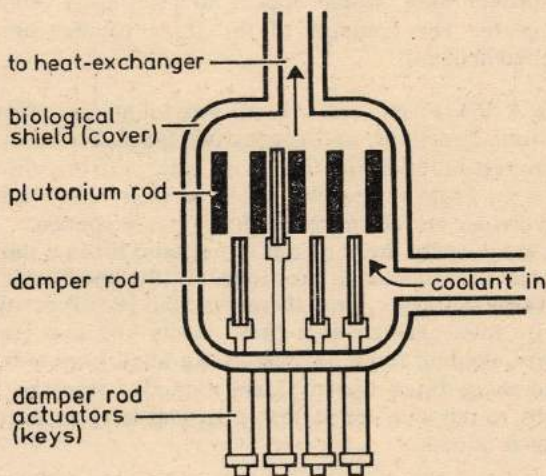
God; the texts rarely confuse Him with the Ancient of Days, but here would seem to be one of the exceptions. The 'fire-container' is MGRVP1A, from GRP, to shovel out ashes and coal.

Although Rabbi Simon is having a supposedly religious vision, the subject-matter of his vision is anything but religious. He is describing (as always) a mechanical structure, in this case involving some type of fire, and toothed or sharp 'keys' connected to a cover, suggesting some type of remote-handling equipment.

To make manna, or indeed any foodstuff, energy is necessary; the Ancient of Days gave off a blinding light, which required power from somewhere. The texts do not record that the device needed to be stoked with conventional fuels; we deduce therefore that the power source must have been

contained within the machine. Even fifty years ago, the notion that such power – at least half a million watts – could be generated within a machine which could be carried by a few men would have been unthinkable. But today, we have all heard of nuclear power.

Rabbi Simon's vision sounds very much like a description of a nuclear reactor: the 'keys' going into the fire-container were actuators controlling the damper rods. This, then, was the power source of the machine; later, we shall give further evidence that the Ancient of Days contained a nuclear reactor schematically shown in Figure 9.4.



9.4 Schematic diagram of a reactor (earth technology)

The Small-faced One

As we have seen, the machine was composed of two main parts, the Ancient One and the Small-faced One. We use the title 'Ancient of Days' to denote the complete machine.

The parts of the Small-faced One are discussed separately in the texts, and one of the most remarkable of these was its brain.

The brain or 'wisdom' of the Ancient One, it will be remembered, was the dew-still which provided the water for the machine. This component was sealed and inaccessible, so no details of its inside parts are given. The lower brain, that of the Small-faced One, was accessible, and for this reason we have a detailed description:

(GHA 559) In the cavity of this skull three cavities are found; the brain rests in them. And the broken skin covers over them. For the skin is not hard or impenetrable, as in the Ancient of Days.

The 'broken skin' would appear to refer to a removable cover-plate. The contents of the three cavities are then described in detail:

(GHA 563) From the first cavity one fountain is split (to go in) four directions, and it goes out from that brain. And there rest in this cavity thirty-two paths, the breaths of the wisdom. From the second cavity another fountain is split and divided and (from it) the fifty gates are opened . . . from the third cavity there go out a thousand times a thousand assemblies and halls of knowledge. It (the knowledge) rests on them and scatters into them. And this (third) cavity – the cavity rests between that (first) cavity and that (second) cavity. And all those assemblies are filled from two sides. And those three (cavities) are extended into the whole body, to this side and to that side; and to them the whole body is joined.

Further information is then given about the parts in each cavity:

(GHA 577) From the fountain of the first cavity of the skull, the hairs are led into conduction. And the curls that hang from the many fountains which are fed by this cavity are made to work. From the second cavity the fifty fountains go out, and the hairs are led by those fountains into conduction. And the curls that hang and are mixed with the other locks are made to work. From the third cavity there go

out a thousand thousand assemblies and halls, and the hairs are led into conduction by all of them, and the curls upon curls are made to work . . .

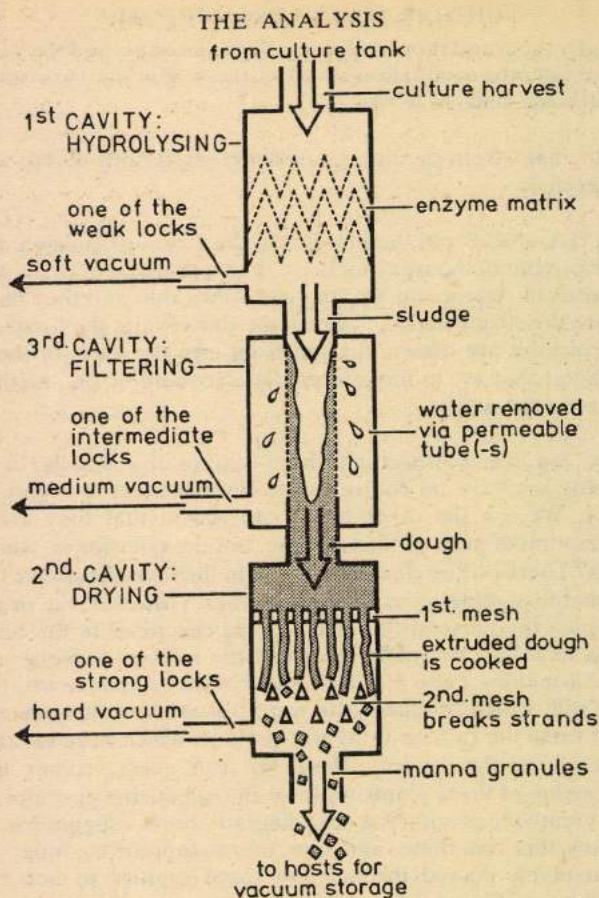
To the hairs from cavities, more of the mysterious 'Lords' are connected:

(LHA 488) From the first brain, the Lords of Balance are drawn out in the weak locks . . . From the second brain, the Lords of Alarm and Wailing are drawn out, and they hang into the strong locks . . . From the third brain, the Lords of Principles are drawn out and hang into the locks of those (hairs) that are in the intermediate (condition, *i.e.*, neither strong nor weak).

How can we interpret all these astonishing details? The theologians have no choice but to dismiss them as flights of fancy. We, on the other hand, can accept that they are a description of parts of the machine, but the question is, which parts? There is little clue to be found in the texts themselves as to what was going on in all these cavities. However, the order in which the parts of the machine are described in the texts tends to follow the order in which the various processes of manna-making occurred. First, we had the upper brain, the dew-still, which produced the water essential to the process. Next came the culture of the water-plants which were the raw material of the manna. Next, we can guess, comes the processing of these plants, to form the appetizing granules of the 'bread of heaven'. The next diagram shows a suggestion as to how this was done, and how the unappetizing sludge of water-plants passed through the three cavities to become manna - see Figure 9.5.

In the first cavity, the sludge is passed through the enzyme matrix, where the plant cells are broken up and their starch and cellulose content are hydrolysed to sugars. In the second cavity, most of the water is removed from the sludge via permeable tubes under the influence of a soft vacuum. The water is returned to the culture tank.

The sludge passes through the very fine mesh, the 'thousand times a thousand assemblies and halls of knowledge' under the



9.5 The manna processing system (technical interpretation of GHA 559, 563, 577 and LHA 488)

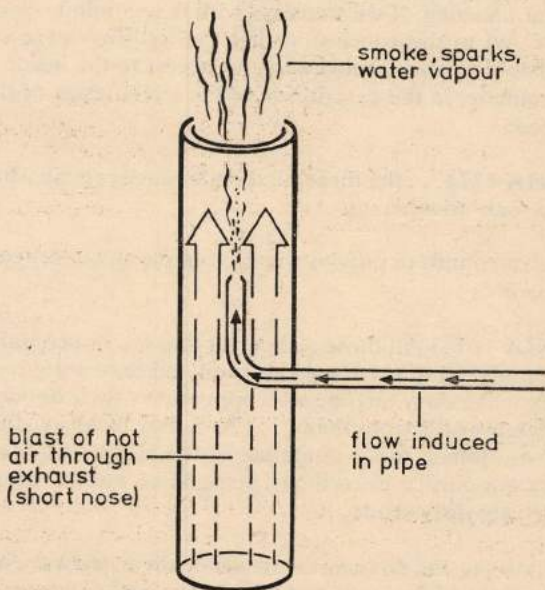
action of a medium vacuum (via the intermediate locks). We suspect that if the water from the dew-still was 'wisdom', and the content of the culture-tank was 'understanding', then the half-processed sludge was likely to have been 'knowledge'.

The sludge is now a sugary dough, which is extruded

through a mesh into a vacuum, where it dries and becomes spaghetti-like strands. Passing through the hot, evacuated cavity, these become slightly cooked, and when crisp they pass through a further mesh which breaks them into granules (the size of coriander). These then fall through into the storage vessels, which must also have been kept under vacuum.

The vacuum was certainly not produced by mechanical pumps. It could have been produced by condensation of steam, but it is much more likely that there was an injection (Buchner) pump in the 'nose'.

In an injection pump, a flow of gas or liquid past a nozzle causes an entrainment of gas or liquid through the nozzle, as shown diagrammatically in Figure 9.6. We believe that this was the system adopted in the manna-machine because of the account of different 'smokes' going up from the nose. When water-vapour alone was present, it would cause a white cloud



9.6 The short nose as an injection pump

to condense above the nose. However, when the manna was being processed, particles of organic matter would inevitably be drawn into the hot airstream, and would burn to soot, giving either a black cloud of smoke or sparks of incandescent carbon – ‘coals of fire’.

The crowns of the Ancient of Days

Anyone who has read other translations of the *Zohar* will have noticed that there are a great many ‘crowns’ associated with the Ancient of Days. However, this word is often used wildly out of context; for example, GHA 1066 refers to the lower crowns in the toes of the feet. We can suspect mistranslation, and this is in fact the case. The Kabbalists, with their obsession for matters mystical and liturgical, translate the word KThR indiscriminately as ‘crown’ when its meaning is simply ‘surround’. Of course, it does mean ‘crown’ too, in the sense of ‘that which surrounds the head’, but ‘surround’ is the more general meaning. If we translate with this in mind, inevitably we are led to the conclusion that the ‘crowns’ were merely detachable covers, removed to give access to the inside parts. For example, in the description of the whitenesses of the eye we cited:

(GHA 133) . . . the three surrounds which remain when it is necessary to open up.

These surrounds or crowns were left in place, but others were removed:

(GHA 1073) All those surrounds that are not contained in the body, all of them are removed and they are dirty. And they make dirty anyone who approaches their bodies so as to learn words from them. . . . And they fly away, and they are not joined to the container of the body. And therefore they are outside everything, being loose above and below. They are dirty inside.

That is to say, the dirt came from inside them, from the body of the Ancient of Days. It would appear that the crowns were protective covers, which when removed were dirty inside from

the messy operations that were the process of manna-making. With sludge spurting from leaking pipe-joints, as surely it did after nearly forty years' of servicing under unfavourable conditions, the machine must have generated a fair quantity of filth towards the end of its working life. Thus novices, who thought they were joining the priesthood to learn the holy secrets, would have been disagreeably surprised to find their ceremonial robes sticky and dirty after handling these greasy parts.

Throughout the texts, there are references to these crowns, or surrounds. If it is remembered that they are simply detachable cover-plates, the meanings become perfectly clear.

The mouth of the Small-faced One

Although the description of the Ancient One's beard refers to a mouth, there is no section of the text describing it, and it is presumed therefore to be a comparatively unimportant component. However, some information is given about the mouth of the Small-faced One, but this appears to be identical with that of the Ancient One; so we may infer that there was only one mouth, the air-intake referred to earlier, and that the description was duplicated at a later date so that both parts of the Ancient of Days should have mouths.

If the mouth was an air-intake, it is natural that it should make a slight sound. Quite likely the murmuring was later interpreted as the word of God being given to his people:

(LHA 679) The lips murmur power, they murmur wisdom.

This quotation conjures up an image of entranced priests standing by the air-intake and listening to the sighing of air being drawn through the filter pads. Later, the sounds they hear will be interpreted as prophecies.

Richard and Roslyn Warren, writing in *Scientific American*, describe an experiment where subjects listened to the word 'tress' recorded on a loop of tape, played over and over again. In a three minute stint, one man thought he heard not only the words tress, stress, and dress – which might be expected – but also Joyce, florist, florist and purse. We should not be surprised that the priests heard 'words of wisdom' from the air-intake of the Ancient of Days.

The mouth appears to have been rectangular, since in the beard-description the hairs 'go up from the top of the mouth as far as the other top of the mouth'. 'Top' here could also mean extremity or corner, and if the hairs go *up* from one corner to the other, on both sides, then the mouth must have *two* corners on each side, unlike the human mouth with only one. Four Hebrew letters were inscribed around the mouth – as we have said, the Ancient of Days was covered with writing, just like many modern machines. However, such details of these inscriptions as are given in the texts add nothing to our knowledge of the machine.

The discussion of the mouth concludes with some comments on the manna, and the caution needed in handling its source:

(LHA 706) Blessed be his part, who is cautious regarding the sweetness of the king, that he may taste of it in proper measure, as it is written: (Ps 34:8) 'O taste and see that the Lord is good', and: (Prov 9:5) 'Come, eat of my bread, etc.'

The king is another title of the Small-faced One, and clearly here the 'sweetness' and the 'bread' refer to the manna.

The ear of the Small-faced One

The account of this organ opens (LHA 582) with the statement that there are two ears, but they 'go up' in one; the word 'go up' (*selek*) can also mean to occur, or to appear. As we saw with the eyes, this is an apology for the fact that the traditions record an unusual number of the organ in question; so we can conclude that there was only one ear. This is confirmed by the fact that the 'ear of the Lord' is usually singular when mentioned in the Bible.

The ear is formed inside with 'curved incisions', so that the 'voice (*kola*) may be traced as it goes up into the brain'. In the ear, there are the Lords of Wings, whose function is to convert the 'voice (*kola*)', into 'speech (*melah*)'. It seems that the voice and the speech were quite different from one another, although one could be converted into the other:

(LHA 592) And that speech that goes out is made to break

through into the ether [*or* space], and it is poured out and goes up and flies into the universe [*or* world]. And the 'voice' is made from it . . . and it goes into [the king's] ears.

This account of the 'voice' and the 'speech' seems to be a description of how radio transmission works. Ordinary 'speech' can be heard by human ears, but it does not travel very far. But with the help of 'Lords of Wings', the speech can be converted into the 'voice'. The voice – a radio signal – cannot be heard by the unaided ear, but it can travel vast distances. However, in order to hear it, another set of Lords of Wings is necessary, a radio receiver to convert it back to speech again. The text continues with a quotation:

(Deut. 5:28) And the Lord heard the voice of your words.

Why not simply ' . . . heard your words?' Because before the Lord can hear 'speech', it must first be converted into the 'voice'. The Lords of Wings, together with 'speech' and 'voice', also occur in this quotation:

(Eccles 10:20) For a bird of the air shall carry the voice, and the Lord of the Wings shall tell the speech.

There is another allusion to radio transmission in the discussion of the black eye of the Small-faced One:

(GHA 632) The second colour is black, like the stone which goes out from the depth once in a thousand years into the great sea. When this stone goes out, there comes a disturbance and a power on the sea. And it is the 'voice' of the sea, and its rotations [*galgalohi*] are made to flow. And the great fish that is called Leviathan is made to listen to them.

Here, if the 'great sea' refers to space, we have a good description of radio transmission. The vibrations caused by the stone move outwards, carrying with them the 'voice' until they are picked up by the Leviathan.

Why should the device causing the oscillations be called a

'stone'? The answer is obvious. Suppose that the Israelites, marvelling at the magic way in which the voice of the Lord can come to them, ask an angel for an explanation. Casting a stone into the middle of a still pool, the angel explains that the 'voice' is like the ripples moving outwards, carrying with it the 'speech'. The Leviathan detects the ripples, in the same way that a fish in the furthest corner of the pool would feel them. Even today, elementary textbooks explain radio transmission in this way – it is a simple analogy which can be understood by non-technical people.

What then was the Leviathan? Our guess is that it was the Lord's spacecraft in Earth orbit, where it remained during the forty years following the flight from Egypt. In a later chapter, we shall discuss further evidence that the Lord kept in touch with the Israelites by radio. It is interesting that, according to Scholem, leading authority on the *Zohar*, the first verse of Psalm 130 should be read:

From the depths (in which thou art) I call Thee up
not:

Out of the depths have I cried unto Thee.

Prayers, we are told, must not be muttered; they must be pronounced loudly and clearly – as if into a microphone:

(LHA 595) And therefore every prayer and wish that a man desires to come before the Holy One – blessed be He! – must be spoken as the words of his lips. For if they do not go out (from his mouth), his prayers are not prayed and his wishes are not wished. And as soon as the words go out (of his mouth) they break through into the ether, and go up and fly, and are turned into the voice. And they are received by those who are for receiving them (*i.e.*, the Lords of Wings) . . .

Early Jewish belief realistically held that God is a Very Busy Person, and therefore prayers must be properly pronounced in the correct format if they are to come to His attention. Elsewhere in the *Zohar*, there is an account of the celestial sorting-office where angels deal with the large number of prayers received, grade them according to merit, and

decide which are worthy of being set on up to the next level.

What was the ear? Perhaps it was a microwave radio antenna built into the Ancient of Days; but it is also possible that there is some confusion in the traditions, and it was some part connected with filtration. According to GHA 723, it was connected to one of the fifty gates of the second cavity of the brain, and according to LHA 598 the 'river of separation' dripped into the ear. At present, we do not have enough information to come to a firm conclusion.

The hand and feet

While the Ancient One consists of an enormous head, terminating abruptly below the neck, the Small-faced One has some parts of the lower body.

He has a single arm, to which the usual argument is applied that there really are two, but only one is ever mentioned in the traditions, or in the Bible. The arm is divided into three joints (kesherin); it is at first difficult to see what these may be:

(GHA 1010) And this right arm, when he sits, he extends the joints. But the arm does not spread its hand into the three joints that have been mentioned.

Clearly, the first 'joints' mentioned are conventional joints, like wrist and elbow. If these are extended, the arm is extended. However, a hand cannot be spread 'into three joints' if the joints are of the usual type.

Later, we are given a mathematical challenge:

(GHA 1019) Tradition: in the left hand are joined four hundred and fifty, a myriad, Lords of Shields. They are joined to each and every finger. And in each and every finger ten thousand Lords of Shields are found. Go out and count how many there are in the hand!

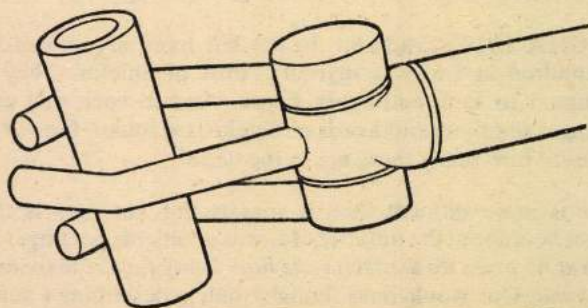
This is more difficult than it sounds, for not only is there vagueness about the number of Lords of Shields per finger, but also *at no point do the texts state how many fingers there are in the hand*. One would have thought that, in describing a hand, a basic parameter such as the number of its fingers would be

among the first data to be given. If in GHA 1019 we read 450 myriad Lords in the left hand, and 10,000 (1 myriad) per finger, then we have 450 fingers per hand. Alternatively, we can surmise that the 'joints' of GHA 1010 are in fact the fingers, for a hand can be spread into three fingers. If there were in fact only three fingers, then this explains why the traditions are reticent about the number.

Josef Blumrich, in *The Spaceships of Ezekiel*, suggests that the 'cherubim' (helicopter units) each incorporated a remote-handling arm which was used to remove and replace hot radioactive fuel elements when it was necessary to work on the nuclear reactors which powered the spacecraft. We have deduced that the manna-machine, a product of the same technology, also incorporated a nuclear power plant, so it is likely that it, too, had such an arm built in, which may have been of a three-fingered design as shown in Figure 9.7. Two 'fingers' oppose a 'thumb', which slots in between them. Such a design is extensively used in laboratories today, and it is extremely versatile, being able to grasp and hold objects of many different shapes and sizes. In fact, the *Zohar* calls the hand 'holy assistance', and

... there are joined to it the Lords of Assistances in every world. (GHA 1023).

In other words, it is a general-purpose accessory.



9.7 Mechanical three-fingered hand

It is doubtful if the Israelites would have been allowed to replace the nuclear fuel elements in the reactor; if they did, they did so successfully, for there are no accounts of plagues of radiation poisoning symptoms afflicting them. However, they may have found the controls for the arm, and used it to make vague movements, perhaps with a view to frightening people.

In addition to the hand, there were also feet. According to Rabbi Simon (GHA 1061), these were six in number. He interprets the verse:

(Cant. 5:15) His legs as columns of marble [shesh]
to mean 'his legs are as columns six', since shesh also means six. This is confirmed in the *Book of the Mystery*:

(BoM 1:36) The six go out from the branch of the root of the body.

Part Four

SERVICING AND SEX

The mighty hosts

Quand on commence à regarder les testicules d'un dieu, on finit par le comprendre.— OLD CHINESE PROVERB

Jean Sendy

In the next two chapters, we must deal with the parts of the Ancient of Days texts which have caused most embarrassment to the authorities – those which deal with the sexual parts of that being. We have already mentioned the ‘penis’, and shown how this would have been the natural name to give to the manna discharge nozzle. We have also referred to the ‘hosts’, the vessels in which the manna was stored before being discharged:

(LHA 761) And all of the stream (of blessing) that flows from all of the body is gathered there, into those that are called the hosts . . . and that flow, after it is collected there, it stays there, and then goes to that holy foundation. It is all white, and therefore it is called mercy. And this mercy enters the Holy of Holies . . .

We have already seen that ‘blessing’ and ‘mercy’ were names for manna – but what were the ‘hosts’ and the ‘foundation’? The texts themselves tell us:

(LHA 740) And furthermore, the body is extended into two legs [*or* irrigations]. And between them they contain two kidneys, two masculine testicles [*literally* eggs]. All the oil and the greatness and the masculine force from the whole body are gathered into them . . . and therefore they are called the 'hosts'; and they are called 'Victory' and 'Glory' Victory and Glory are the hosts, and therefore (we get the name) 'Lord of Hosts'. The masculine penis is the end of the whole body, and it is called the 'foundation'.

'Kidneys' and 'eggs' are words used in many languages as euphemisms for testicles, and it is clear that this is what is meant. The two hosts, then, Victory and Glory, the manna storage tanks, were thought of as testicles; and the manna discharge nozzle, the penis, was the foundation. These parts of the texts are exceptionally clear in meaning, but how do we account for these codewords?

The Hebrew word for hosts is TzBAVTh, usually transcribed in English as Sabaoth. It is supposed to be the plural of the word TzBA, which means an army, or a collection of people for the purpose of warfare. Perhaps the testicles were thought of as 'armies' because they collected all the 'masculine forces' of the body. On the other hand, the word TzBA is masculine, and in the plural it should be TzBAIM *or* TzBAM – TzBAVTh is a feminine plural. What feminine word exists from which TzBAVTh might be derived? One possibility is TzBH, pronounced almost exactly the same as TzBA, which means 'swelling'. So it is equally possible that the testicles acquired this name, 'swellings', because they were thought of as becoming swollen with all the manna they were collecting.

It is small wonder that the religious authorities do not approve of the study of the *Zohar* – for if we read this passage, we are led to believe that the title 'Lord of Hosts' derived from the Ancient of Days. What is more, every reference to the 'Lord of Hosts' must seem, to Zoharic scholars, near blasphemy: a god with swollen testicles. We must give credit to the Jewish powers-that-be for not having burnt every copy of the *Zohar* they could find many hundreds of years ago.

In retrospect, it is easy to see what happened. The title was first applied to the Ancient of Days, but later became transferred to God himself. The swellings became hosts and the manna-machine with its great beard and two monstrous testicles, on its throne, became a bearded, benevolent God sitting on his throne, with his armies on his right and on his left sides. At least, this is what the 'Lord of Hosts' means to the ordinary worshipper – but to the initiates, those who possess the secret knowledge, the title has a very different meaning.

The names of the testicles were Victory and Glory, in Hebrew, NTzCh (Netzach) and HVD (Hod). Do these words have any other meaning? Sure enough, the dictionary tells us that NTzCh also means 'juice' or 'essence' in Hebrew, and it is used in the Bible (Isa. 63:3), with the meaning of grape-juice. Again the connection is obvious, since the testicles collected all the nutritious juices from the body. For the other name, HVD, there is no alternative translation given. However, we could suspect a connection with ChDH, to rejoice, and speculate that the second testicle was called 'Joy', the emotion felt when it was seen to be filled, and the day of rest had come round again.

If the testicles stored the manna, then it is logical that it should be discharged from a penis; but why should the penis be called 'Foundation'? The Hebrew word here is ISVD (Yesod), from the verb yesed, to found or establish something. This obviously has some connection with the usual function of that organ. However, we can go further. If we omit the I, the smallest letter of the Hebrew alphabet, we obtain SVD, (Sod). This word means 'secret' or 'secret part', surely a name to be applied to the penis of any being, heavenly or earthly.

With all this sexual symbolism associated with the manna discharge process, it is only natural that the Israelites should think of it as a masculine orgasm. Not only did the manna storage and discharge components resemble human genitalia, but there was also the weekly cleaning ritual, laden with sexual significance.

Every seven days, the machine was carefully taken apart and cleaned, with all the parts lovingly protected from dust

and dirt. Then, even more carefully, it was reassembled, culminating in the final plugging together of the two major components, a sexual act in itself. It was then switched on, and the various processes would start in order. First, the dew would run down from the brain, then the 'great sea' would fill, with the 'oil of great goodness' running through the 'beard'. Then the 'tears' would run down from the 'eyes', adding seed and fertilizer, and finally the 'eye of providence' would light up with a blinding brightness. There would then follow a long period of waiting, during which the plants multiplied and were drawn off and processed, before the testicles started to fill. At long last, after many hours of anxious preparation, the manna would flow. Small wonder that the whole process was seen as some kind of cosmic copulation.

This is supported by many Jewish customs and beliefs held even today. For example, rabbis are expected to be married, and intercourse for them on the night of the Sabbath is *compulsory* – a far cry from the beliefs of some Christian sects, who even restrain their domestic animals from sexual activity on the holy day. It would appear that the Rabbinical custom must have arisen from the need to ensure a successful coupling together of the machine, and a copious flow of manna on the day after the Sabbath. The manna was discharged into the Holy of Holies of the Tabernacle, which was seen as being equivalent to the womb of Israel. The manna came to be thought of as the semen of God (the Bridegroom), which fertilized Israel (the Bride), and caused her to increase and multiply; without it, the Israelites would soon have died out from starvation. This symbolism is well illustrated in the Song of Solomon, the book which, as we have said, some people think ought not to be in the Bible at all. Until the +second century, nobody knew what to make of it, but then the great martyr Rabbi Akiba pronounced it to be a love poem, in which the Bride (Israel) praises the manly attributes of the Bridegroom (God). In fact, we have seen that much of the description of the Bridegroom applies better to the Ancient of Days. He 'cometh out of the wilderness like pillars of smoke' (Cant. 3:6) – a reference to the exhaust from the nose – and his legs are as 'pillars of marble' (Cant. 5:15),

which the *Zohar* tells us should be 'as pillars six'. The English translation says that 'His belly is as bright as ivory overlaid with sapphires' (Cant. 5:14), 'bright ivory' being OShTh ShN. This is an obscure phrase which might also mean 'artificial tooth'. However, *Shi'ur Komah* (p. 171), another mystical work, quotes this phrase as OShRTh ShN, which is perfectly good Zoharese for 'twelve'. So, which do we believe? The official Hebrew text makes little sense; but by adding one letter 'R', we obtain:

His inside parts are twelve, covered with sapphires.

As we have said, the coupling of the main parts, the Ancient One and the Small-faced One, was seen as a sexual act. Both these parts were thought to be male, but between them there was sandwiched a part known as the 'bride'. We will now quote a part of the text which, in our opinion, can only refer to the assembly of some mechanical object; in no way could it be interpreted as a sexual act, between gods or anyone else:

(GHA 945) In this 'appearance of man' [*i.e.*, the Small-faced One] the male and female start, and form a container. When this 'appearance' is formed in its parts, it starts from his chest, from between the two arms, in the place where hang the hairs of the beard that are called 'beauty'. And this 'beauty' is extended, and it forms two breasts. And it is drawn out to its hind parts, and makes the skull of the female. The whole is concealed on all sides by the hair in the face of the head. And they (the hairs) are made into one container in this 'beauty' When the face of the head of the female is created, there hangs one lock of hair from the hind-parts of the Small-faced One, and it hangs as far as the head [*or* top] of the female. And the hairs in her head are excited; they are all of a red that contains within it all colours . . .

Tradition: this 'beauty' is extended from the navel of the heart, and it penetrates and passes through to the other side. And it forms the face of the female as far as the navel. And it starts from the navel and finishes in the navel

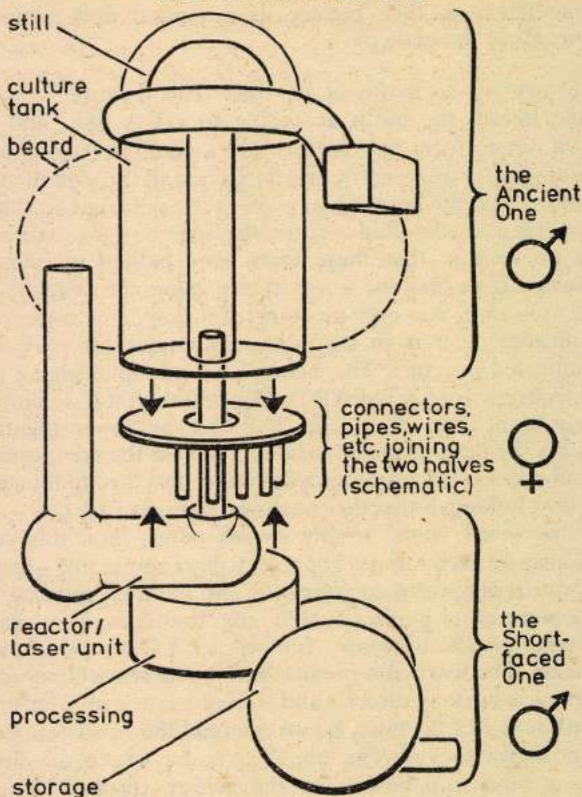
Furthermore, this 'beauty' is extended and forms the bowels of the male part.

What are we to make of all this? The 'beauty' is a part of the beard, the ninth according to GHA 888, and it is drawn out to form two breasts and a skull. It is completely surrounded by other hairs, and it extends all through the body from one navel to another, or even to the same navel. What is more, it is also extended to form 'the bowels of the male part'. It is no wonder that these texts have baffled scholars for centuries. If we take the words at face value, the description is total nonsense; it is only meaningful if they have some other significance, that is to say, they are names for parts of a complicated structure. The 'beauty', for example; what is this? The Hebrew word is ThPARTh (Tiphereth) but if we omit the nearly silent letter A, we get ThPRTh, or 'sewer-together'. This fits the description admirably, because the component is described as going from one side of the structure to the other, and thus holding it together as shown in Figure 10.1.

If the word 'male' simply means penis, then this could obviously be used – as it is in present-day engineering – for any part which plugs into another one, and the texts indicate that there were other penises besides the 'foundation', or manna discharge nozzle. Likewise, 'female' is NVQBA (Nookba) in the texts. The word also means 'hole' – the sexual imagery of Aramaic is brutally direct – and is used as such to refer to the 'nostril holes' of the nose. So we can read the word 'female' to mean simply 'socket'. The 'hairs', as we have seen, are simply pipes or wires, and 'bowels' are the inside parts of anything. In the light of this, the text becomes simply a mechanical description, but unfortunately it is not clear enough for us to attempt to reconstruct it.

The main penis, it seems, had an orifice which could be covered:

(GHA 969) And as soon as the 'yod', the mouth of the penis, is uncovered, the 'upper mercy' is uncovered. And this penis, is 'mercy'; it is so called because the 'mercy' hangs in the mouth of this penis. But it is not called 'mercy' until the 'yod', the mouth of the penis, is uncovered.



10.1 The plugging together of the two major components

If 'mercy' or manna was equivalent to semen, then we can see why the Jews developed such an abhorrence of masturbation. Ancient people generally had no strong views on the habit, except maybe for a mildly derisive attitude to those who practised it, on the grounds that they were unable to procure partners for more rewarding forms of sexual activity. Some modern medical men actually approve of masturbation, holding that it helps to prevent congestion and disease of the prostate gland. The British public-school view that it causes

blindness and other evils is now discredited, and the practice of sending boys to bed wearing boxing gloves has surely ceased. Why then did the Israelites disapprove so strongly of this harmless vice? Our researches have provided the answer – it came to be believed that if anyone masturbated in the Israelite camp, some of the manna might get spilled on the ground the next morning. If this happened, it would not only be wasteful, but also sacrilegious, for every granule of the 'Bread of Heaven' must be used for its appointed purpose: maintaining the life of the children of Israel. In the Bible, Onan suffered death for spilling his seed on the ground (Gen. 38:9), and there was a regulation banishing from the desert camp anyone who had a nocturnal emission (Deut. 23:10).

Earlier, we suggested that the penis, known as *yesod*, may in fact originally have been called *Sod* (SVD). The following quotation supports this:

(Ps 25:14) The secret [SVD] of the Lord is with [*literally for*] them that fear him; and he will shew them his covenant.

In the Psalms, as in other Hebrew poetry, each verse often consists of two parts, each of which says the same thing in slightly different ways. Here, we have 'secret' – which could mean 'penis' – and 'covenant'. Now, the sign of the covenant was the circumcised penis; all male Jews are circumcised as a reminder of the covenant, or agreement, made between the Lord and his people (Gen. 17:9ff). So it is possible that, in the second part of this verse, 'covenant' means 'circumcised penis', matching the 'secret' of the first part, and that the whole verse originally meant that only those who feared the Lord would get their manna ration, and would be privileged to see the penis of the Ancient of Days. Later, we shall discuss the connection between the great importance of circumcision in Jewish ritual, and the manna-machine. For the moment, we can note that the Hebrew word for 'uncircumcised' is *ORL*, literally 'obstructed', and that circumcision is normally carried out early in the morning, the time of the manna distribution. Dire would be the consequences for Israel if the penis of the Ancient of Days were to become blocked.

The discharge of manna took place into the Holy of Holies,

and according to this passage it was accompanied by the pronunciation of a codeword by Moses:

(GHA 696) And Moses speaks these words [IHVH, IHVH] in the place of judgement, that he may make measures of mercies go down from the Ancient Holy One to the Small-faced One. For they teach that so great was the power of Moses, that he made the measures of mercies to go down to the lower part.

IHVH is the Hebrew spelling of the holiest name of God, usually written in English as Jehovah. However, the true pronunciation was probably more like Yahweh. The 'place of judgement' was one side of the Ancient of Days – the other was the 'side of mercy'.

So, according to this text, Moses went into the Holy of Holies, said the Holy Name twice, and the 'measures of mercies' ran down from the upper part to the lower part of the machine. What were these 'measures of mercies', mekhilin di-rechemi, in the original?

Jastrow's excellent dictionary lists the word mekhila as meaning: (1) A measure of capacity, retribution, or dealing-out; (2) A vessel used in connection with the show-bread in the Temple; and (3) A collection of rules, etc. We have already been to some trouble to show that mercy was one of the names given to manna. It was not an abstract quality of forgiveness, but a physical substance, a food. This text gives further confirmation of this, for mekhila was a unit of measure; it is as if the text referred to a litre of mercy, quite nonsensical if forgiveness was meant. What is more, the word can also mean a dealing-out, such as a distribution of manna by the measure, and it was a measure used for the show-bread in the Temple. The show-bread is said to have been a ritual meal set out in the Holy of Holies, in case God decided to pay his people a visit. However, God with a big G does not eat (we presume) and therefore the show-bread must have had some other purpose. It seems clear that it was a display of food laid out in front of the Ancient of Days, in the hope that the sight of it would persuade that being to give once more of the 'Bread of Heaven'.

When we read that Moses entered the Holy of Holies, said the Name twice, and down came the measures of manna, we are tempted to suggest that the machine incorporated voice-recognition circuits, which permitted it to be commanded to manna discharge mode only when the password had been said, repeated twice for extra security. Whether this was so or not, the Israelites clearly believed it to be the case, for the failure of the manna coincided with the death of Moses. Afterwards, the priests probably thought that only *his* voice could make the manna flow, and they may have spent a lot of time trying to imitate his pronunciation exactly. But however hard they tried, it never worked, and gradually their hopes of success faded. By the time the Temple was built, the attempts to make the Ancient of Days work again were limited to once a year, on the Day of Atonement.

The fact that the 'voice' was considered essential to starting up is borne out in this passage:

(GHA 716) Tradition: at the time when Israel is crying out in distress, then the hairs are uncovering from over the ears, so that the voice can go into the ears, into that tube that drips from the brain, and it collects in the brain. And it goes out into the tubes of the nose. And the nose is shortened and becomes hot, and fire and smoke go out from those tubes, and all the strengths are excited, and it makes revenges. But before the fire and smoke go out from those tubes, that voice goes upwards, and influences the top of the brain, and the two tears flow down from the eyes. And the smoke and the fire go out from the perforations (of the nose), by (the action of) that voice . . .

Is this a vision of God working himself up into a fury? Or is it the starting sequence of a manna-machine?

The sexual antics

As we said earlier, the storage and discharge of manna from the Ancient of Days had a sexual significance for the Israelites. But so also did the weekly cleaning operation, the stripping down and reassembly, which took place on the Sabbath. At this point we must consider the objection: surely all work is forbidden on the Sabbath; why then was the work of cleaning the machine done on that day? To answer this, we must point out that Jewish Sabbath regulations are not as strict as those of some Christian sects. Only *non-essential* work is forbidden, so as to leave maximum possible time for *holy* work, such as attending synagogue, studying the Law, and eating the three ritual meals of the day – which, however, have to be prepared before the Sabbath. From this, we can speculate that the original purpose of setting aside every seventh day was to enable maximum effort to be devoted to the most essential and holiest task – the weekly servicing of the Ancient of Days.

So that the priests would not be disturbed at their intricate work, the people had to pitch their tents at least 2,000 cubits (1,000 metres) from the Tabernacle, and their Sabbath journeys were limited to the same distance. To keep the amount of unnecessary dust and dirt to a minimum, journeys had to be made on foot, and it was forbidden to gather fuel or light fires on the Sabbath.

The fixed seven-day week is a purely Jewish invention, now

adopted by most of the world. Before them, the Babylonians had a calendar based on lunar months, with holidays on the 7th, 14th, 19th, 21st and 28th of each month, the months being 29 or 30 days in length. As a result, the Babylonian 'weeks' were of irregular length. The Jews adopted the fixed seven-day cycle, regardless of the day of the month, though they retained the Babylonian months, and still use them today.

It has been suggested that the Sabbath day originated as a day of rest *for* God, rather than one *enjoined by* God. If 'God' originally meant the Ancient of Days in this context, the theory makes good sense.

References to the servicing operation are scattered through the Ancient of Days texts, and they refer mostly to the reassembly, the most critical operation. All this was done in the privacy of the Holy of Holies, the inner enclosure of the Tabernacle, the front of which was screened by a curtain:

(GHA 34) And after a time, he was taken apart, behind that curtain, and was shaped in his parts.

There is also a list given of the five 'sex-organs' of the female:

(GHA 964) Any tradition: the five sex-organs are uncovered in her . . . the voice in the wife is exposed; the hair in the wife is exposed; the leg in the wife is exposed; the hand in the wife is exposed; the foot in the wife is exposed . . .

Now these five parts are not what we normally think of as 'sex-organs' in a woman; we can conclude that the word simply means something normally kept hidden, but exposed during the stripping-down operation. The names will be arbitrary, based on some vague resemblance to parts of the body. The voice (*kola*), the first part to be removed, may in fact be 'shining part' (*kalal*), a polished cover-plate; after this, the other parts must be removed strictly in the order given.

The machine would have to be switched off before being taken to pieces:

(GHA 1028) And when he separates them, he delays [*or*

darkens] the Small-faced One with a sleep, and separates the female from the hind-parts of his sides. And he forms all her parts for her, and keeps her discreetly until her day, when she is to come to the male.

It is obvious that this tradition was later taken as an admiring reference to the sex-life of the gods; so great is their passion that you need to give them an anaesthetic to get them apart! However, we interpret this as simply a reference to shutting down the machine and the need for keeping the female part 'discreetly' means that the mating surfaces had to be kept clean until reassembly.

When the parts were reassembled, the fit was so good that the join was invisible:

(LHA 715) . . . the female is extended on her side and is attached to the side of the male, until she is separated from the (male's) side and comes to be joined to him face to face. And when they are joined together, they appear to be one body, no less. From this, we learn that the male part on its own is seen to be half the body . . . and so also is the female part. And when they are joined together, the whole thing is seen to be one body, no less.

The ancients might well have experienced a thrill at the thought of the titanic sexual act which was in progress, if the bodies were so closely joined. However, more prosaically, we can interpret this simply as a comment on the close tolerances to which the Ancient of Days was machined. This text continues:

(LHA 720) And it is so. And when (the male) is joined to the female part, the whole thing is one body. And all of the worlds are in joy as a result of this, and all of them receive blessing from the complete body.

We have seen that 'blessing' is another name for manna. This confirms that it came from the completed body of the Ancient of Days. The text continues by confirming that the joining-together took place on the Sabbath:

(LHA 721) And they (the male and female parts) are a secret (thing). 'The Lord blessed the seventh day and hallowed it'. The whole (thing) is found united in this (day). The complete body of this 'matron' is connected to the king, and the body is found to be one. And thus blessings are to be found on that day.

It will be remembered that 'blessings' or manna were not available on the Sabbath – so which day is meant here? The following text is helpful:

(LHA 746) When the matron is separated, and is joined to the king face to face at sunset on the Sabbath, then the whole is joined into one body.

The Sabbath runs from Friday sunset to Saturday sunset, and it is not clear which is meant here. However, we can deduce that it must be the Saturday sunset that is meant, and the 'blessings' were in fact found the next morning, on Sunday. Saturday nights are traditionally a time of rejoicing for Jews as well as Christians, after the end of the Sabbath. This rejoicing may originally have marked the successful completion of reassembly. There would be no weekday manna unless the work had been successful – no wonder that the priests, no doubt enthusiastically imitated by the people, felt obliged to perform prodigious feats of sexual endurance on Friday nights! This is surely sympathetic magic at its best.

We have mentioned that the parts of the female had to be kept 'discreetly' until they were required for reassembly, to prevent the finely polished surfaces from becoming scratched or damaged by dirt. This might explain the Hebrews' obsession for covering up the sex organs. As this literature shows, they were no prudes, but they invariably wore heavy clothing, which can have been neither comfortable nor healthy in a hot climate. Other nations exposed themselves, but the Israelites invariably kept their genitalia under cover.

This custom may well have arisen as another piece of sympathetic magic: the result of thinking of their sex organs as the delicate, inside parts of a disassembled machine. The outer parts, which did not have to fit precisely with others, could

safely be exposed to the dust and sandstorms of the desert, but precision machined parts fitted to close tolerances could easily be damaged if they were allowed to come into contact with abrasive materials. The Israelites would know from painful personal experience the effects of a few grains of sand on their Friday-night activities, so most probably they were determined that no such discomfort should afflict the sex life of the Ancient of Days. All exposed flanges and tapped holes were carefully protected while the machine was stripped down, and just to be sure, the people gave the same protection to their own private parts.

As mentioned earlier, the time of reassembly was known as the 'time of acceptance' or 'acceptor', and the copulation took place face to face:

(GHA 595) And at the time when the Holy One – blessed be He! – is stimulated to enjoy himself for just men, the face of the Ancient of Days shines into the face of the Small-faced One, and his (Ancient of Days') forehead shines [*or flows*] into that (other) forehead, then it is called the time of the 'Acceptor' [OT^h RTzVN].

Here, 'just men' are those entitled to receive their manna ration.

Elsewhere in the *Zohar* (1:148a), it is stated that the male and female parts are united when the posterity of Jacob say the prayer *Shema Yisrael*. This prayer is one of the most ancient parts of Jewish liturgy, dating back at least as far as the time when the Temple was in use. It starts with: 'Hear, O Israel, the Lord our God is one Lord!' (Deut. 6:4). The prayer is the central affirmation of the Jewish faith, the proclamation that God is One. It is said twice daily, and devout Jews hope to die with it on their lips. But dare we suggest that the prayer might have had a different origin? Might it be that it was originally a declaration by the High Priest, on the afternoon of the Sabbath? For it is addressed to Israel, to the people; as a proclamation of faith it should be addressed to the world at large – addressing it to Israel alone is preaching to the converted. Surely, when the Small-faced One had been successfully attached to the Ancient One, something had to be

said; perhaps the High Priest emerged from the Holy of Holies and told the people: 'The Ancient of Days is One' – meaning 'the manna-machine has been successfully reassembled'. Later, when the machine was forgotten, the same form of words became a declaration of faith.

This connection between the Shema prayer and the pseudo-sexual union is also made in the supplements to the *Zohar*:

When the union is made, peace reigns in the world and all the goodnesses come to the place where the male and female principles are found. This is why Moses said: 'Hear O Israel, the Lord our God is one Lord' (after de Pauly 2:620).

The Ancient of Days was stripped down regularly each Sabbath, and also, it seems, for transport:

(LHA 218) Tradition: at the time when the Ancient Holy One . . . wishes to be transferred, the whole is transferred, in the form of male and female, to the place where they are completed. The male and female are not alive, except in the other life of male and female.

That is, they are not plugged together. During transport, the machine would have to be covered up in some way, both to protect it from the elements and also to preserve its secrecy. Therefore it is interesting to find a reference to 'garments'. For while it was working, it would obviously be impossible to cover the machine, but when switched off and dismantled for transport this would be possible:

(GHA 882) And from this 'glory and honour' there hang those clothes which are caused to clothe him. And they are the expensive purple of the king. For it is written: (Ps 104:1) 'For thou art clothed in glory and honour'. This is the part that clothes him . . .

The 'expensive purple' is the Tyrian purple, a costly dye made out of sea shells (*Murex brandanis*) that was used as a mark of

nobility. As the Bible repeatedly stresses, only the most expensive materials were good enough for use in the Tabernacle, and Tyrian purple would have been the only dye suitable for the clothing of the Ancient of Days. At once, one thinks of the cover of rams' skins dyed red specified for the Tabernacle (Exod. 25:5 etc.). This must refer to the Tyrian purple, which in ancient times was a by-word for extravagance; it takes 10,000 shells to make 1 gram of dye.

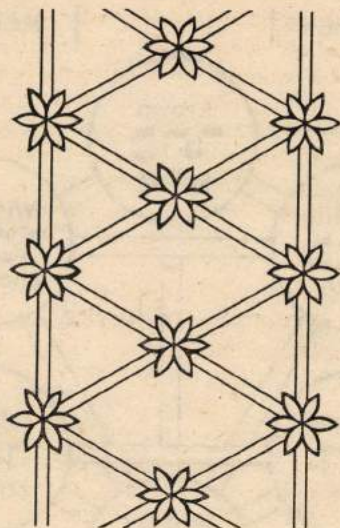
The Tree of Life

No book on Kabbalism or the *Zohar* would be complete without mention of the Tree of Life, a curious diagram used by mystics, astrologers, and magicians. For the benefit of readers who do not belong to these categories, we will explain what it is.

The Tree of Life was a Babylonian concept, and as represented in carvings it does not look particularly like a tree at all. It was shown as a series of leafy rosettes, arranged and connected in a strange pattern as illustrated in Figure 11.1. To the Babylonians, it was a tree with magical fruit, which could only be picked by the gods. Dire consequences befell any mortal who dared to pluck from it. The tree found its way into the Hebrew legend of Adam and Eve, a story which is too well known to need repetition, and which is heavily loaded with allusions of the Ancient of Days. Recent works on the Kabbalah make extensive use of this tree. Ten parts or attributes of the Ancient of Days are identified with ten of the rosettes, which are connected as shown in Figure 11.1.

The ten circles are known as sephiroth, the plural of sephira, meaning a number. They are interconnected in various ways. We show a recent version, in which the number of connections has been adjusted by the mystics to be twenty-two. Each connection is identified with a letter of the Hebrew alphabet, and with one of the twenty-two trumps major of the Tarot, the pack of cards used by some fortune-tellers. It is believed that the sephiroth exercise a mystical influence on one another via these connections.

Now that we have given our analysis, it seems clear that the ten sephiroth are an early, fumbling attempt by the mystics to reconstruct a diagram of the machine. They understood that



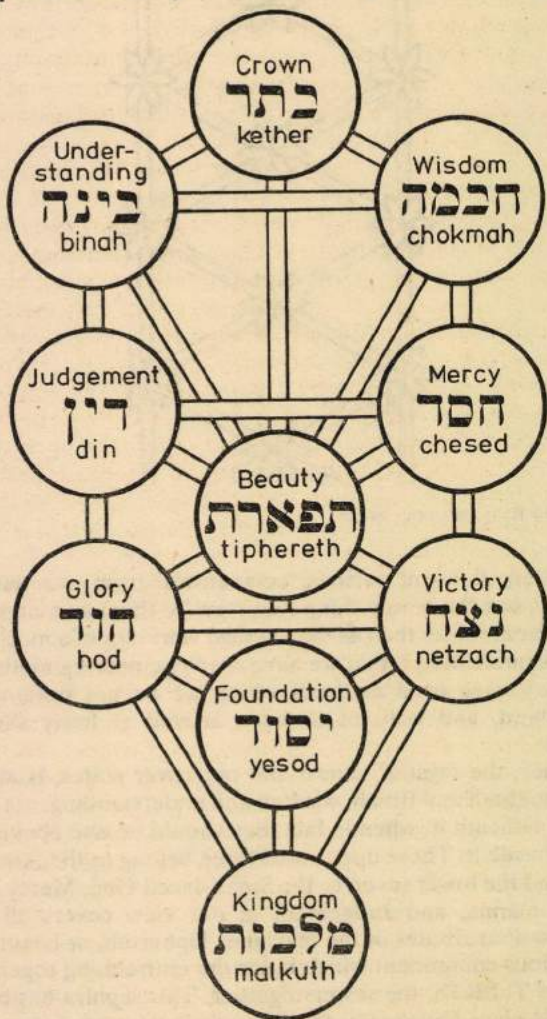
11.1 The Babylonian tree of life

there were flows of various 'emanations' from one part to another, but the whole thing was seen by them as a mystical abstraction, rather than as the physical workings of a machine. What is interesting is that we have used engineering methods, and they have used methods which we do not pretend to understand, and both of us have arrived at fairly similar results.

Kether, the mystics' crown and our cover plates, is at the top. Chokmah and Binah, wisdom and understanding, are side by side beneath it, when in fact they should be one above the other, inside it. These uppermost three belong to the Ancient One, and the lower seven to the Small-faced One. Mercy is of course manna, and Judgement in our view covers all the unpleasant attributes of the machine. Tiphereth, or beauty, is the curious component which holds the entire thing together, which is ThPRTh, the sewer-together. This sephira has been correctly placed by the mystics centrally in the tree, connected by bonds to all but one of the other sephiroth, and holding

| JUDGEMENT |

| MERCY |



them together. Netzach and Hod, victory and glory, are of course the testicles or manna storage tanks, and they have been properly placed at either side, with Yesod, the penis or manna discharge nozzle, between them. Malkuth, the kingdom, does not appear in the *Zohar* texts, and was probably added later. The mystics' tree of life is illustrated in Figure 11.2.

It is probable that the modified Babylonian Tree of Life was assimilated later into the traditions of the Ancient of Days, because the *Zohar* texts never mention sephira or sephiroth as such. The various sephiroth – wisdom, understanding, and so on are mentioned, but they are never referred to as sephiroth. Scholem, leading expert on the *Zohar*, states that the three books on which we base our argument were the original source material of the whole of the Kabbalah; if this is so, then the Tree of Life and the sephiroth must have been added later. This addition may have occurred during the captivity in Babylon, which was when the manna-machine was lost, according to our theories. The absence of mention of sephiroth as such in these texts indicates the antiquity of those texts, for sephiroth are mentioned in other books dating back to the +second century.

The following is a list of the sephiroth, with the traditional and the engineering interpretations of their names:

1	KThR	Kether	Crown	Surrounds, detachable cover-plates
2	ChKMH	Chokmah	Wisdom	Brain, dew-still resembling a brain
3	BINH	Binah	Under- standing	Between-thing, culture tank
4	ChSD (GDVLH	Chesed Gedulah	Mercy Greatness)	Manna
5	DIN (GBVRH	Din Geburah	Judgement Strength)	Unpleasant material, bad manna, burns, electric shocks etc.

6	ThPARTh	Tiphereth	Beauty	Read as ThPRTh: bar joining the machine together, from ThPR: to sew
7	NTzCh	Netzach	Victory	NTzCh also means juice: one testicle or manna storage tank
8	HVD	Hod	Glory	Other testicle or manna storage tank – perhaps connected with ChDR: To enclose, inner chamber
9	ISVD	Yesod	Foundation	Read as SVD: secret part, penis, manna discharge nozzle
10	MLKVTh	Malkuth	Kingdom	No specific mention in <i>Holy Assemblies</i> : perhaps baseplate 'over' which Ancient of Days sits

(11 DOTH Da'ath Knowledge)

Readings in brackets are alternatives sometimes found: if Da'ath is present, it is fitted between Chokmah and Binah.

The dimensions of god

The myriad worlds

Throughout the *Zohar*, there are references to 'worlds' which suggest that the word is not being used with its conventional meaning. We have already quoted this text:

(GHA 968) The length of that penis is two hundred and forty eight worlds.

Could it be that these 'worlds' were a unit of measurement? If they were, the fact must have been forgotten before the *Zohar* was compiled, because this text continues:

And all of them [the worlds] hang in the mouth of the penis, which is called 'yod'.

This must be a later addition, an attempt to explain this most peculiar statement. However, there are several other places where the 'worlds' might be measurements, so the possibility was worth investigating. The word used in the Aramaic, OLMA, can have many meanings – world, Earth, eternity, permanence, or secret.

Where the 'worlds' might refer to a unit of length, the numbers are in the hundreds, but when the reference might be to an area, they are much larger. Numbers which might be measures of capacity or volume are larger still. The ancients

were very fond of playing games with numbers, and the figures in the texts may be just flights of fancy. Nevertheless, we shall take a brief look at them, to see if they might have some meaning.

The people responsible for running the manna-machine would have been eager to find out how it worked, though they could only describe what they could see. They would not have dared dismantle it too far, both because of the danger, and for fear of interrupting the manna supply. On the other hand, it was a holy object, given to them by the Lord, and they would wish to find out and record as much as they could about it. While using and maintaining the machine, they would have discovered that it was not miraculous, but that it worked according to what we now call scientific laws. However, they would have had no way of expressing this.

When it stopped working, and they knew that it would never start again, they would have dismantled it as far as possible in order to describe the parts. But, as we have seen, it had to be handled with the greatest care and respect, so the amount of internal description they could give would be limited. They did try, however, as the following passage shows:

(GHA 206) Tradition: The length of the nose; three hundred and seventy five worlds are filled by that nose, and all of them are attached to the Small-faced One. . . . It, and all the parts of the Ancient of Days, are seen, and they are not seen; they are seen by the Lords of Measurements, but they are not seen by anyone else.

The Lords of Measurements were the privileged few who were allowed to investigate the workings and the dimensions of the machine. In spite of their efforts, the *Holy Assemblies* give very few firm dimensions, and none of them is above suspicion. The Kabbalists juggled with numbers to such an extent that any number with special significance is suspect. For example, 248, the length of the penis, is also the number of bones in the body and of the positive (thou shalt) laws. Similarly, 365 is the number of sinews in the body, days in the year and negative (thou shalt not) laws. $248 + 365 = 613$, the number of precepts of the Law, so when we read:

(GHA 85) The path to the Small-faced One . . . is divided into the six hundred and thirteen paths of the Law . . .

it is as well to be cautious.

On the other hand, if the Ancient of Days is as ancient as we suppose, perhaps these numbers were adjusted to fit its dimensions. Certainly, modern anatomists would dispute the numbers of bones and sinews. Nevertheless, we will give a list of the dimensions specified in 'worlds' for what it is worth. It would appear that a world can be a unit of length, area or volume; a myriad is 10,000.

<i>Lengths</i>		<i>Worlds</i>
GHA 206	Nose of Small-faced One	375
GHA 968	Penis	248
<i>Areas</i>		
GHA 53	Face of Ancient One	370 myriads
GHA 555	Face of Small-faced One	150 myriads
<i>Volumes</i>		
GHA 43	Skull of Ancient One (in some readings)	13,000 myriads 12,000 myriads
GHA 545 } LHA 444 }	Skull of Small-faced One	9,000 myriads

Here we have measurements of length, area, and volume all being given in the same unit – the 'world'. What can these worlds have been? Today, we measure lengths in units such as millimetres, inches, and so on, areas in square units, and volumes in cubic units. How is it possible for one unit to be used for all three types of measurement?

To answer this question, we must put ourselves in the place of the ancient Hebrews, and see what units of measurement they had available. Linear measures were based on parts of the body – two palms = 1 span, two spans = 1 cubit. These units were variable from one person to another, and not accurate enough for scientific purposes. As regards units of area, these were only required for agricultural purposes. We cannot be certain what units the Hebrews used, but we do know that in

Europe till recently, very large, inaccurate measures were used, presumably because land was plentiful and nobody worried too much. In England, the measure was a 'hide'. To measure off a hide of land, one killed a cow, skinned it, and cut the skin into the thinnest possible strips. These were then joined together, to form a large loop. A hide of land was the area inside the loop when it was laid out on the ground. In Germany, the unit was the 'Morgen' – the area of land a man could plough in a morning. In the north of the country, a Morgen was larger than in the south, where the ground was more difficult to work. It is reasonable to suppose that the Hebrews could not have had accurate measurements of area either. As regards measure of volume, they had units such as ephah and the omer, which we have mentioned, but according to the reference books these varied considerably.

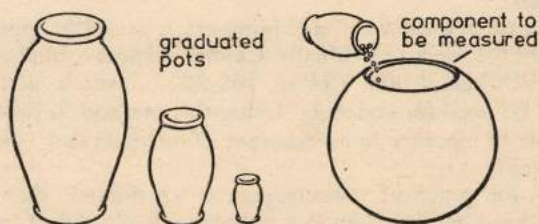
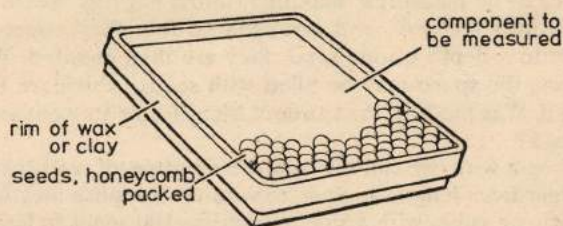
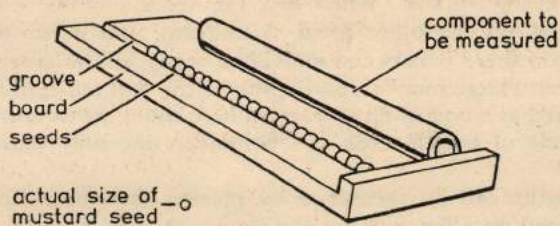
However, we must not overlook the fact that the reference books are doing their best with incomplete information and that there were certainly 'private' systems of counting and mensuration in ancient times.

The Ancient Greeks, for example, had a counting system even worse than the Roman (similar to the Hebrew, as it happens), and it seems clear from the results obtained by Ancient Greek mathematicians that they must have had their own computational systems to carry out the work, and then translated the answers into the clumsy, everyday notation.

The accuracy of the pyramids and other ancient monuments is well known and testifies to accurate surveying and measuring techniques which can only be guessed now.

We believe that the priests studying the manna-machine, faced with this same problem of making accurate measurements, decided that they needed a fresh, unified system. But what standard unit could they adopt? What was needed was some small object, of reasonably uniform size, which was available in large quantities. The ancient Israelites were farmers, not scientists, and it therefore seems likely that the choice would be some kind of seed. But which seed? We know that the barleycorn was used for some measures, but it is not ideal – the seed is not spherical, and it is rather large. A small, round seed would be preferable.

Two types of small, round seed are mentioned in the Bible;



12.1 Measuring with seeds

Above: measuring lengths (schematic)

Centre: measuring areas (schematic)

Below: measuring volumes

coriander and mustard. Coriander is the larger, and varies considerably in size. When dry, the seeds crumble easily. Mustard, on the other hand, is uniform, and hard. What variation there is between individual seeds will be averaged out over a large number. So hypothesizing that mustard seed was used as a unit of measurement how could measurements be made of length, area and volume, using only mustard seeds?

Lengths can be measured by placing the object to be measured on a flat surface, and lining the seed along it in a row: a V-shaped groove can be made, and the measuring board tilted slightly, so that the seeds remain in contact, and in a straight line. To measure area, a rim can be placed around the area to be measured, making it into a flat tray. Seeds are poured into the tray, and arranged so that they cover the surface to a depth of one seed; they are then counted. With volumes, the space may be filled with seeds, which are then counted. Was this how the Lords of Measurements went about their task?

To begin with, we can see how the numbers of seeds would get larger from length, to area, to volume. Suppose they were measuring a cube, with a side measuring 100 seeds in length. The area of one face of the cube would be 10,000, and the volume inside it would be 1,000,000. For larger volumes, the numbers would soon become astronomical, such as we find in the texts.

Because of these very large numbers, it would be impossible to count the seeds individually. Calibrated pots could be made up, which held 1,000, 10,000, 100,000 . . . seeds, and these would be used for counting. Using this method, it should be possible to measure to an accuracy of one part in 1,000, with reasonable care.

For our practical measurements, we assume that seeds would have been shaken into a 'honeycomb' pattern for area measurements, and that volumes would be 'interleaved honeycomb'. These are the patterns which the seeds fall into naturally when thoroughly shaken; they need larger numbers of seed for area and volume than those given above.

Our measurements on mustard seed purchased from a local store gave a mean diameter of 2.05 mm. This gives lengths,

areas and volumes as follows:

Length	2.053 mm
Area	3.650 mm ²
Volume	6.490 mm ³

Substituting these in our tables, we get:

Length of nose of SfO	0.770 m
Length of penis	0.509 m
Area of face of AO	13.50 m ²
Area of face of SfO	5.47 m ²
Volume of skull of AO	0.84 m ³
Volume of skull of SfO	0.58 m ³

All we can conclude from this is that the dimensions are of the right order of magnitude. It is worth noting that the word for 'penis', AMH, can also mean 'cubit', a unit of length which is close to 248 'worlds'.

Shi'ur Komah

While on the subject of measurements, it is worth mentioning another mystical text, known as *Shi'ur Komah* (ShOVR QVMH). This means: 'dimensions of the body', and it is a short text which purports to give the actual measurements of God Himself. For this reason, it was most unpopular with the authorities, but nevertheless many Jews continued to take it seriously. It gives the dimensions of the body of God in parasangs, and also their secret names, which are mostly meaningless collections of Hebrew letters.

As regards the date of this remarkable document, it probably comes from around the beginning of the Christian era, and so would be rather later than the *Zohar* traditions. In fact, it lists many names of God which are derived from the Ancient of Days material. These names include: the clean king, the united king, the king who lights up, the king of taking apart and putting together, the king full of mercies, the king who stores mercies, and the king who is white with the splendour of the hosts. In our opinion, *Shi'ur Komah* is referring to the Ancient of Days and not to God.

Of the secret names listed, two are of interest – those of the two halves of the body, MN KMTz and ChRBV MTzTzITH

MTzIA. Regarding the first of these, there is no word KMTz, but the pronunciation of this could be similar to ChMTz. There *is*, a word ChMTz, and it means 'yeast'. The name of the first half then means: '(away) from the yeast'. As we shall see, it is probable that yeast was forbidden in the desert to avoid contaminating the manna culture, and this name may refer to a part of the Ancient of Days which was particularly sensitive to contamination.

Regarding the second name, it seems that the author of *Shi'ur Komah* received several versions of it, so he wrote them all down, to be sure of including whichever of them was correct. Let us take it that the name was ChRBV MTz-. ChRBV means 'his sword, drying-up, *or* desert', and of words starting with MTz, there are MTzTz and MTzH, both meaning to suck *or* dry out. So in this name, we find two quite different words, both of which can mean 'to dry out'. Could it be that this garbled name refers to the part of the manna machine where the granules were dried? We cannot say for certain. However, *Shi'ur Komah* does show that there was a tradition, in certain Jewish circles, of some god-like being which had dimensions. What is more, this tradition persisted in the face of opposition from the religious authorities.

Science and magic

In the last chapters, we looked at some of the material contained in the books known as the *Holy Assemblies*, which deal with the being known as the Ancient of Days. We have come to the conclusion that the Ancient of Days must have been a physical object which the Israelites possessed, and that it is more than likely that it was a machine for making manna. Besides the *Holy Assemblies*, there is another book, the *Book of the Mystery*, on the same subject. We have not quoted much from it, because the same material is to be found, expanded, in the *Holy Assemblies*.

While the *Holy Assemblies* are a course of lectures on the Ancient of Days, the *Book of the Mystery* consists of short, cryptic notes, without any discussion or explanation. The book is short enough to be easily memorized in full. Looking at it, we are inclined to suspect that it is a remnant of the original instruction manual used at the manna distribution ceremonies, and at the weekly servicing operation. Among other things, it contains checklists of the thirteen parts of the 'beard', the pipework which surrounded the machine. Perhaps a priest would recite the book, while others checked off the various parts on the actual machine. This is an age-old technique, well known on board ships, aeroplanes and spacecraft. One crew-member reads from a list of the various checks to be done, while the others perform them, and confirm that they

have been done. This in turn suggests the verse and response of a church service, the dialogue between priest and congregation:

Priest: Praise ye the Lord!

People: The Lord's name be praised.

Could this have a parallel with:

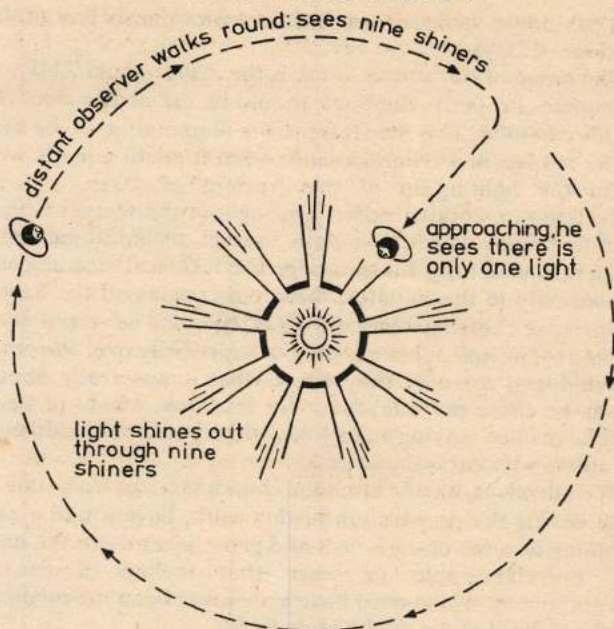
High Priest: Open the drain-cock!

Lower priests: The drain-cock is open.

The title *The Book of the Mystery*, in Aramaic, is *Siphra di-tzeni'utha* – the Book of the tzeni'utha. This word comes from tzena' (TzNO), meaning something private or secret, so probably the true meaning of the title is *The Book of The Secret Ritual*. In fact, the old meaning of the English word 'mystery' is a secret ceremonial; we could mention the Eleusinian Mysteries, which were orgiastic fertility rites to which only selected persons were admitted. Therefore, it is more than likely that the book was the order of service for some private ceremony, such as the weekly 'servicing' of the Ancient of Days.

We once deduced that the rituals carried out in the Temple on Yom Kippur, the Day of Atonement, were attempts to get the machine to work again. We later discovered that the text Micah 7:18-20 is used, even to this day, in Yom Kippur synagogue rituals! According to the *Zohar*, these three verses of the Bible are a collection of thirteen code-phrases, the names of the thirteen parts of the beard. Can it be that, after three thousand or so years, the Jews still recite the checklist of the parts of the beard? Or is it mere coincidence?

There is another interesting example of the number thirteen being used, in the Passover rituals, at which a song is sung similar to the English 'Green grow the rushes-O'. In the Jewish version, the song goes up to thirteen ('thirteen are the attributes of God'), instead of only to twelve as does the English version. One explanation of this is that God is One, and One is AChD in Hebrew. If we add up the numerical values of the letters in this word (see Appendix I), we get 1 + 8



13.1 The nine bright shiners (interpretation of LHA 43)

+ 4 = 13. This is one explanation – but alternatively perhaps the thirteen parts of the beard had something to do with it too.

The English version of the song is also of interest, because it includes the 'nine bright shiners' (see Figure 13.1) and the 'six proud walkers'. Until now, scholars have failed to discover what these may be. Therefore it is tempting to suggest that they come from the Ancient of Days:

(LHA 43) When he is made, there go out 9 lights [*literally* shiners] that are lit up by him, by his parts . . . [they are] extended in all directions. And . . . when one approaches them to obtain knowledge of them, he does not find them, and there is only the lantern.

The 'six proud walkers' can be linked with the six feet of the Ancient of Days.

The name of our source-book is the *Zohar*, from ZHR, to illuminate. Properly, the book should be called *The Book of the Illumination*. This may refer to the illumination of the soul of the reader, in a religious sense – but it might equally well mean the lighting-up of the Ancient of Days, and its restoration to working order. Throughout the texts, we have seen that many words have both a secret, technical meaning, and a revealed, religious meaning. The technical meaning was known only to the initiates, those who possessed the Secret Knowledge. During services, these *cognoscenti* could look around them, and enjoy a feeling of superiority over the other worshippers, for only they knew what it was *really* about. When he chose the title *Zohar* for his book, Moses of Leon may have been making an in-joke, which could be shared only by others who knew the secrets.

We ourselves, having attended church services from time to time during the preparation of this work, have found a new meaning in some of the words and procedures used. We have felt ourselves able to share that feeling of excited enlightenment which must have previously been the privilege solely of the Reapers of the Holy Field.

We could speculate that some modern secret societies may have tenuous connections with these ancient brotherhoods – for example, the Freemasons. The Masons are the descendants of the old guild of craftsmen who built mediaeval cathedrals. When cathedral-building stopped, at the end of the Middle Ages, the society no longer had a practical purpose, but it continued to exist in the form of a semi-secret brotherhood. Rituals were devised, many of which were derived from those of an older secret society, the Order of the Rosy Cross, or the Rosicrucians. They in turn had obtained them from the Knights Templars, who were originally a crusading organization based on the site of the Temple in Jerusalem. Here, they would inevitably have had contacts with members of the Reapers of the Holy Field, and of other Jewish secret societies. As a result of this long chain of connections, Masonic rituals are largely based on details of the Temple and its contents, and we find many references to the Ancient of

Days material in them. We have already mentioned the 'Eye of Providence' on the green side of the one-dollar bill, which we suggest is derived from the light-source of the manna-machine.

All these societies originally existed for one main purpose – preserving the secret, ancient knowledge. Until a few hundred years ago, people believed that in older times men had possessed magical powers. They thought of their own time as degenerate – the true secrets of immortality, turning lead into gold, and other miracles, were to be found in the distant past. It is only in the nineteenth and twentieth centuries that we look to the future for technical improvements; before, ancient texts, rather than the latest scientific journals, were thought to contain these secrets.

As a result, the *Zohar* was seized on by mystics and magicians, astrologers and alchemists. In those days, the border between science and magic was a misty and ill-defined one. Now, at last, we can see why – they are one and the same thing. Magic is the legendary technological skill of early space visitors, while science represents our own slow progress towards the achievements of those visitors, as we painfully rediscover their secrets. It was only some two centuries ago that men became aware that studying the ancient texts was no short cut – they did not contain enough information. We believe that our Ancient of Days texts offer a convincing proof that a manna-machine existed – but they give only an anecdotal account of how it functioned. They do not tell us of what materials it was made, simply because the ancient chroniclers did not know. All they could do was to count the pipes, watch the various liquids flowing in them, and measure some of the parts. However hard we study the texts, we will never be able to find in them complete instructions for making our own machine. We are almost in a position to do so, not from having studied the texts, but as a result of solid scientific and engineering data, built up over the past three hundred years or so by a great many people. Reading the texts only confirms that such a machine is possible, and that the Israelites had one. This is why the true meaning of the texts has eluded successive generations. It was garbled and lost long before scientific studies in the modern sense were established. Sooner

or later, the *Zohar* would be examined by people who had the necessary interest, as well as the linguistic, technological, and interpretive abilities. We are aware of the privilege that has been granted to us.

The power source

We have examined the biological aspects of the manna-machine, and have shown that it would have been technically possible to have designed a compact machine which would have fed the Israelites. Now we must look at the technical requirements in more detail, in particular the energy needed.

We have seen that the requirement in food energy to feed the Israelites was 4.4×10^6 calories per day, which is equivalent to a rate of doing work of 210,000 watts, or 70 watts per head, in electrical units. In mechanical units, we could say that it was equal to 284 horsepower – the power output of a large motor car engine, running 24 hours per day, 6 days per week.

This energy had to be supplied from within the machine, in the form of light. For comparison, the Sun's energy at the Earth's surface is about 1,000 watts per square metre. So even if the Sun shone 24 hours a day, and was directly overhead all the time, we would still need 210 square metres of catchment area to obtain enough energy – assuming that the *Chlorella* was 100 per cent efficient in converting it. In practice, as we showed earlier, the *Chlorella* is not so efficient as this – some of the light energy is bound to be wasted, and disappear as heat. Types of *Chlorella* known to us can achieve efficiencies of up to 20 per cent, and the Lord's superior technology could doubtless have produced a strain which was 50 per cent

efficient. This then means we must provide a round 500,000 watts – half a megawatt – in light energy. Half of this will be used by the plants to convert water and carbon dioxide to carbohydrates, and the other half will be dissipated as heat.

Half a megawatt of light energy is an extremely bright light. An ordinary domestic hundred-watt lamp is only about 10 per cent efficient, giving ten watts of light and ninety of heat. So our light source will be as bright as 50,000 hundred-watt lamps – small wonder that the *Zohar* describes the face of the Ancient of Days as shining with ‘a brightness that exceeds all brightnesses’. Close to, the light source would appear much brighter than the Sun; it would be necessary to move away several metres before the two seemed equally bright. However, when the machine was working, much of the light would be absorbed by the plants, reducing the apparent brightness considerably.

It is obvious that the efficiency of filament-type lamps is far too low to be of any use in such a machine. Not only is the efficiency low, but the radiation is over a broad spectrum, ranging from the infrared nearly to the violet, and the *Chlorella* can only make use of parts of this spectrum – the rest will be wasted. The light source chosen must be of much greater efficiency, and it should preferably produce radiation only at wavelengths which can be used by the plant culture.

Next, one thinks of fluorescent tubes, used in the home as well as in factories and offices, which are more efficient and give off less waste heat. They operate by passing an electric current through a gas at low pressure. This causes the gas molecules to vibrate, and give off light at certain wavelengths. The light is rather harsh, so the tubes are coated inside with a material which converts it to a pleasanter white colour, at some sacrifice in efficiency.

In the *Bios-3* experiment carried out by Soviet scientists, the light for the *Chlorella* cultivators came from xenon discharge tubes. Xenon is a gas similar to neon, and tubes using it can operate at higher efficiencies than ordinary fluorescent tubes, although they are still not really satisfactory for our manna-machine. We will have to attack the problem from another angle.

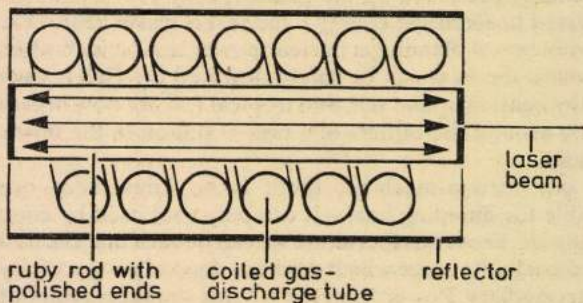
Both filament lamps and discharge tubes operate from

electricity. If we are to use such light sources in our machine, the electricity must first be generated. In our analysis of the texts, we discovered a 'fire vessel' which we thought was a nuclear reactor, the source of all power in the machine. Nuclear reactors can provide heat energy, which may be used to raise steam, which drives a turbine, which drives a generator, which produces electricity. There is nothing novel about a nuclear power station in today's world. In these power stations, the actual reactor is quite a small part of the whole – boilers, turbines, generators, and steam condensers are also necessary. The reactor simply replaces the fossil-fuel heat source of a conventional power station. What is more, the overall efficiency is still quite low – for every hundred watts of heat energy produced by the reactor, only about one fifth is converted to electrical energy – the rest is waste heat. One of the problems of planning a nuclear power station is choosing a site where the heat can be safely disposed of. This is usually done by heating up the sea, and tropical fish are now breeding happily around the outlets of a power station in the north of Scotland.

In our manna-machine, there is no convenient ocean available for dumping heat – it can only cool itself by contact with the air. From this fact alone we can deduce that the design must use a light source which does not depend on electricity as an intermediary. Power from the reactor should produce light energy directly. How could this be achieved?

Everybody today has heard of lasers, devices which produce highly-concentrated beams of light. Early lasers were hardly more than laboratory toys, useful only for punching holes in razor blades; indeed, their performance was measured in Gillette-power. Now, hardly twenty years after the original invention, lasers of much greater power are available. They are basically simple devices, the secret lying in the materials used and the precision of manufacture. A well-known type, the ruby laser, consists simply of a rod made of artificial ruby, with its ends ground exactly flat and parallel. The ends are then silvered, so that light inside the rod is reflected backwards and forwards between its two ends, without escaping at the sides. This ruby rod is then enclosed within a coiled gas-discharge tube, and the whole surrounded by a metal tube

highly polished inside. A heavy pulse of current is passed through the coiled discharge tube, causing it to give a brief flash of brilliant bluish light. This is simply a larger version of a photographer's electronic flash unit. The light illuminates the ruby rod, causing its molecules to store energy. Once the energy has reached a given level, 'lasing' starts. Light of a certain wavelength starts to bounce back and forth between the end mirrors of the ruby rod, gathering power from the energy trapped in the molecules. The beam of light is parallel, of one particular wavelength, and coherent - that is to say, its vibrations are all in step. Some of the light can be extracted from one end of the rod, and put to use.



14.1 Schematic diagram of a laser

What the device does, in effect, is to take incoherent light of mixed wavelengths, going in all directions, and convert it into coherent light, of one wavelength, and going in one direction only.

These early ruby lasers were pulsed devices. Lasing only occurs above a certain power level, and if this power were applied all the time, the whole thing would melt. Therefore they are pulsed, time being allowed between pulses for cooling down. However, there are lasers which can run continuously, known as CW (continuous wave) lasers, and these use a gas-filled tube instead of a ruby rod. The tube has a mirror at each end, and power is applied by a coil carrying high-frequency electric current.

In ruby lasers, power is applied in the form of incoherent light; in gas lasers, it may be applied as an electromagnetic field, or by passing a current through the gas. In both, the purpose of the energy supplied to the device is to excite the molecules of the lasing material, enabling them to store up energy. This energy is later released as laser radiation. Clearly, the manner in which energy is supplied to the laser is not critical; perhaps there are other ways in which lasers can be 'pumped', to use the technical term.

The nuclear reactor in our manna-machine would produce not only heat energy, but also high-speed nuclear particles. If these hit anything, their energy is turned to heat, but could it be used more productively?

In radioactive materials such as plutonium, some atomic nuclei are disintegrating all the time, giving off neutrons. If a neutron hits another plutonium nucleus, it can cause that one to disintegrate as well. In small pieces of plutonium, this does not happen often, but if the piece is made larger, the chance of any neutron hitting another nucleus before it leaves the mass is increased. If the size of a piece of plutonium is gradually increased, it gets extremely hot, and the number of neutrons flying about increases alarmingly. There is a certain weight of plutonium which, if made into a sphere, is of a size such that each neutron, on average, causes exactly one further disintegration. This is known as the *critical mass* of plutonium. If two pieces of plutonium are brought together suddenly, so as to exceed the critical mass, and are held together for long enough, there is a chain reaction, each neutron setting off more than one further disintegration, and the process becomes downright dangerous. This is known as an *atomic bomb*.

It is clear that, in principle, a nuclear reactor is a very simple affair. All you need is plutonium, and some material such as graphite, which mops up the neutrons. A number of plutonium rods are assembled, with movable graphite ones in between. To stoke it up, the graphite rods are withdrawn, and the reactor gets hotter and hotter as it approaches the critical condition. To damp it down, the graphite rods are pushed in, reducing the number of neutrons around and allowing the system to cool. Modern reactors may be safely run very close

to the critical condition, enabling a large amount of power to be obtained from a small mass of radioactive material – when compared with the power available from, say, fossil fuel. The main difficulty lies in extracting the heat fast enough from such a small volume. There is no theoretical difficulty in making a half-megawatt reactor small enough and light enough to fit into our manna-machine. The part which is difficult is converting this energy into light with reasonable efficiency.

In our discussion of lasers, we showed that a piece of material must be provided with energy before it will 'lase', and that this energy can be supplied in different ways. The molecules of the material must be excited, either by incoherent light, or by an electromagnetic field. Our nuclear reactor can provide energy in the form of high-speed particles: neutrons. Is there any reason why these should not pump the laser directly? There is no reason why not, provided that the particles can interact with the lasing molecules in the right way. In fact, we understand that neutron-pumped lasers are under development at the present time, but no details are available because of military security. A laser of this type would be ideal for manna-machine use, because it could be constructed as an integral unit, with reactor and laser in one package. This can then be installed at the centre of the culture tank, needing only control connections and a supply of cooling medium to operate.

In the manna-machine we need a source which shines outwards in all directions. For this reason, we postulate that the Ancient of Days used a combined reactor-laser unit with a number of lasing elements, radiating in different directions, with a system of reflectors and diffusers to tailor the radiation pattern to fit that required to illuminate the culture vessel. As we have intimated, the colour of laser light depends upon the type of laser used. There is reason to suspect that some of it was in the red region of the spectrum, for the texts state that when the fire and smoke started to come from the exhaust, that is to say when the machine first started to work, its face turned red. The fire and smoke and red face were taken as indications of anger. Elsewhere, the face is said to have shone with a white colour. It seems that when the machine was first started, at the beginning of the week, and freshly re-seeded, it

was run up with a red light. When the plants had multiplied enough to reach the working concentration, more lasers were switched in, giving light in other parts of the spectrum. These may have combined with the red to give an overall white colour, when viewed through the culture vessel and its opaque contents.

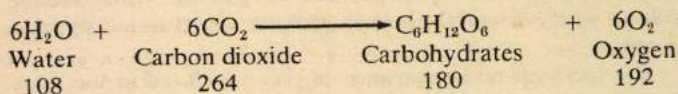
The fact that no appearance of green is noted in the texts would suggest our view that the process was very efficient, for as we have seen, chlorophyll reflects green light and does not use it. Therefore, no green light was supplied by the lasers, as this would only have been wasted. The culture would only have appeared green if it had been seen in sunlight, but as we have pointed out, the light from the machine itself would have swamped any illumination from the sun. A mixture of red and blue light gives an appearance of magenta, which, with some yellow light generated by fluorescence in the culture, would combine to give the effect of white light. As pointed out earlier, it is important that the maximum surface area of culture be exposed to the light; this was achieved in the *Bios-3* cultivators by passing a number of xenon tubes through the tanks, instead of having a single source in the middle. Our texts state that the manna-machine source was single, although it was reflected in various ways so as to give a multiple appearance when seen from certain directions. The source and culture tubes were arranged so as to use the light with maximum efficiency. The tubes, which were some of the beard hairs, also contributed to cooling and aeration of the culture medium.

In short, the evidence from our own knowledge and from the texts indicates that a neutron-pumped laser, operating by the direct conversion of nuclear energy into light, was used to provide the light for the manna-machine. The spectral characteristics of the source were tailored to fit the needs of the *Chlorella* used, and an optical system would have ensured that all parts of the culture vessel received the correct illumination.

The first requirement for making manna is energy, in the form of light; however, just as important is the supply of raw materials, which had to come from the outside world – from

the atmosphere, and from fertilizer supplied.

Let us repeat the basic chemical equation, giving the relative weights of materials used and produced:



For a basic diet, carbohydrates, fats and protein are necessary. With the addition of nitrogen, also available in the atmosphere, these can all be made from water and carbon dioxide. However, comparatively small traces of other elements are also necessary, and are added to the culture solution as required.

We have derived from our equation the relative weights of materials needed, and can now calculate the amount of 'thin air' needed each day to feed the Israelites, using the fact that 800 kg of carbohydrate are needed each day:

Ratios Actual weights

Water	108	480 kg	
Carbon dioxide	264	1170 kg	
Carbohydrate	180	800 kg	
Oxygen	192	850 kg	(released to atmosphere)

When considering the water requirement, we need to know the relative humidity in the Sinai desert some 3,500 years ago. Unfortunately, Meteorological Office records do not go back that far, so we must make a few assumptions. It is known that the temperature occasionally dropped to freezing point at night, and that dew was a common occurrence – ordinary dew that is, not the 'dew of heaven'. The Sinai area is between two seas, and, however hot the day, the air remains fairly moist. We will assume the worst case, that the dew-point of the air was 0°C – that is, an object must be cooled to this temperature before dew will form on it. From tables, we find that this is equivalent to a relative humidity of 14 per cent at 30°C, and 100 per cent humidity at this temperature is

equivalent to 32 mm Hg water vapour pressure. From this, the minimum figure for the water content of the air is 4.7 grams per cubic metre at 30°C. If the dew-still works at freezing point and is 100 per cent efficient, then the air needed to provide this water is 102,000 cubic metres per day, or 1.2 cubic metres per second. Our assumption of 100 per cent efficiency is offset by our earlier assumption of a dew-point of 0°C.

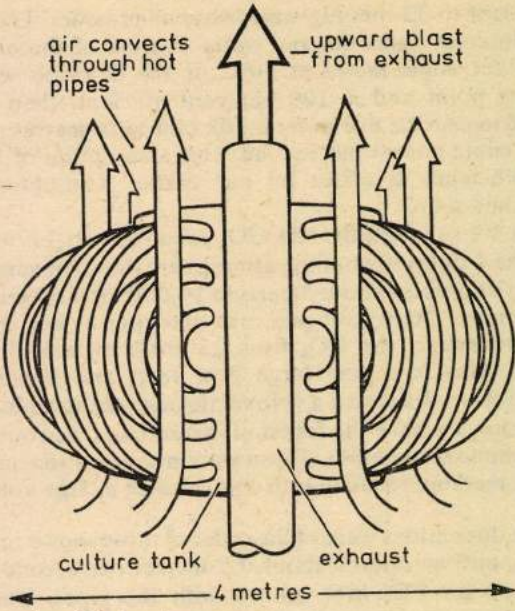
Next we can consider the CO₂ requirement, 1170 kg per day. The CO₂ content of the atmosphere does not vary much, and it is at present about 3 parts in 10,000, or 0.59 grams per cubic metre. With 100 per cent absorption, our machine needs to extract the CO₂ from 23 cubic metres of air per second. This is a very large flow rate, and it would be impossible to draw such a volume through the machine itself. Therefore, we have the forest of 'beard hairs' surrounding it which the texts mention. These were necessary to enable the culture medium to come into contact with a large volume of air.

If the dimensions were of the order of those shown in Figure 14.2 an airflow rate of about 0.5 metres per second would bring enough CO₂ into contact with the pipes. These, of course, are made of a material which permits gases to diffuse through them, so that the CO₂ can dissolve in the medium and be absorbed by the plants. In practice, absorption would not be 100 per cent efficient, and a higher flow rate would be necessary. The surface-area of the 'beard' could be much increased by its having tubes with corrugated walls as shown in Figure 14.3.

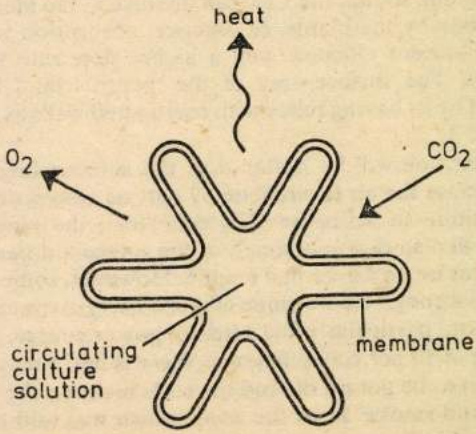
The machine will be hotter than the surrounding air, and this will cause the air to circulate by natural convection.

In addition to acting as CO₂ collectors, the pipes of the 'beard' will also dissipate much of the unwanted heat, acting like the fins on an air-cooled engine. However, some air must be passed through the machine (Figure 14.4), so as to cool the inside parts, particularly the nuclear power source. If this is operating at 50 per cent efficiency, there is half a megawatt of waste heat to be got rid of, and the texts mention the exhaust, the 'fire and smoke' from the nose, which was said to be hot enough to kindle coals. Assuming an exhaust temperature of

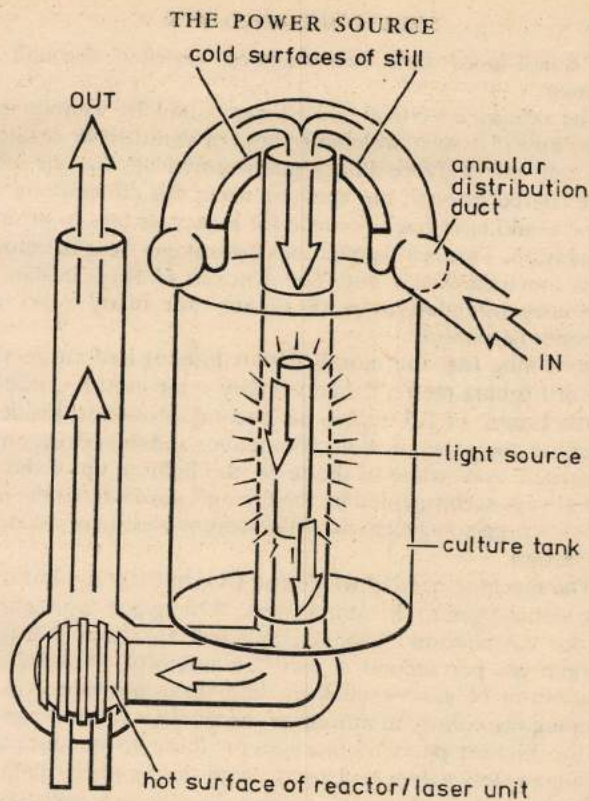
SERVICING AND SEX



14.2 The pipes of the beard



14.3 Section through a beard hair



14.4 The air flow through the machine

530°C, we can calculate the air-flow rate if half a megawatt is being dissipated: it comes out at 1.5 cubic metres per second.

This is a remarkable figure, for it is very similar to the air-flow required to meet the water needs of the machine, 1.2 cubic metres per second. This at once suggests that the same air was used for both purposes. The purpose of the machine was to provide manna, not to act as an air conditioner; it was therefore possible to use the cold, dry air from the dew-still to cool the inside parts. After passing through the dew-still, this air would first cool the reactor-laser, and then pass through

the Small-faced One before being expelled through the exhaust.

The exhaust is vertical, for the smoke and fire went *up* in his nose, and if it was sufficiently hot, it would have created a chimney effect. Once things got warmed up, the air would have roared through the machine using this effect alone, and there would have been no need for pumps or fans to promote circulation. This is a tremendous advantage, because moving parts inevitably wear out. The Ancient of Days design was obviously intended to work reliably for many years with minimum attention.

Assuming that the mouth (or air intake) had an aperture size of 1 square metre, the air velocity at the mouth would be a gentle breeze of 1.5 metres per second. However, inside the machine, the passages would be smaller and the velocity much increased. According to the texts, the lighting up of the face was always accompanied by the fire and smoke from the nose, which strongly suggests that this feature was incorporated in the design.

The machine needed water and CO_2 to function, but it also released oxygen to the atmosphere; 850 kg per day according to our calculations. This is equivalent to about 7 litres of oxygen gas per second, a very fair quantity. However, this generation of gas would have had the important effect of keeping the culture in motion as the bubbles formed and rose to the highest parts of the system, there to be discharged through safety valves and vents. With the rapid circulation of the culture through the pipes, and the vigorous action of the oxygen bubbles, the machine would have given an impression of a furious fermentation. Perhaps it is this which inspired:

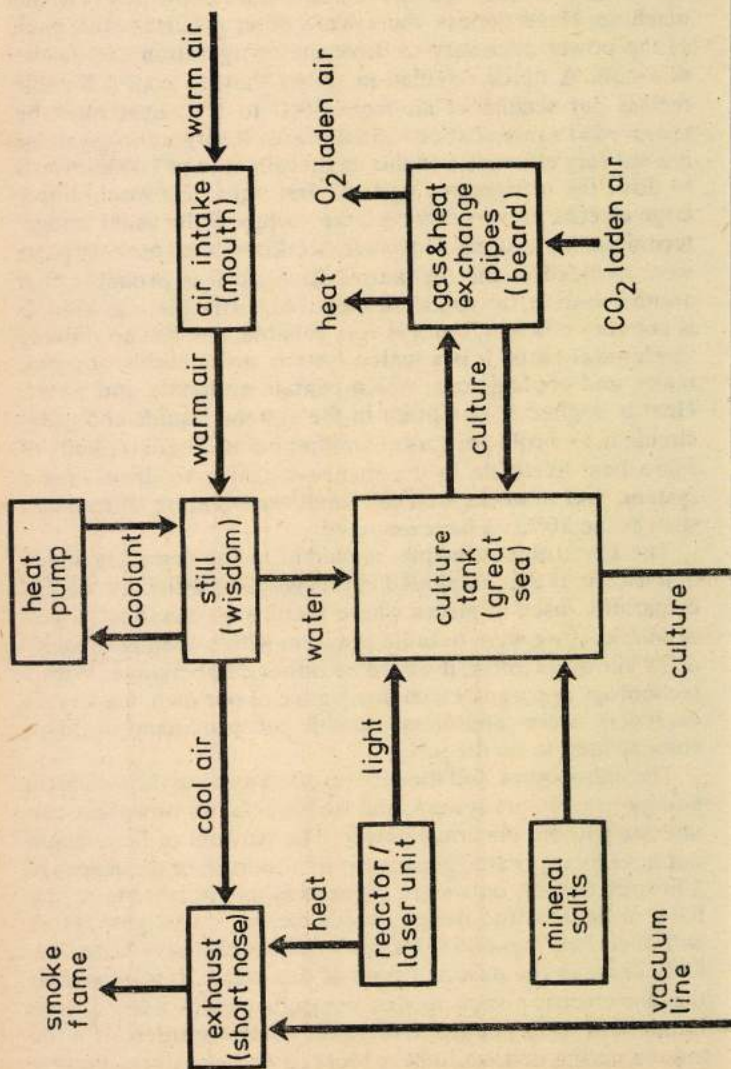
Where is . . . the sounding of thy bowels and of thy mercies towards me? Are they restrained? (Isa. 63:15).

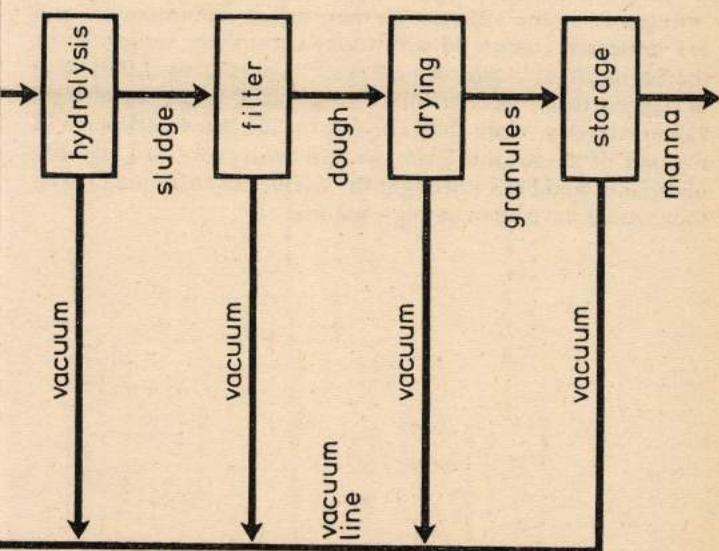
It is possible that some people feel a churning in their insides when they are about to exercise compassion. In our view, it is more likely that the association between 'mercy' and gastro-intestinal upsets arose from the great rumbling in the guts of the Ancient of Days which inevitably happened as the manna was being made.

In discussing energy needs, we have so far mentioned only the light source, which took up the lion's share of the power in the machine. Nevertheless, there were other requirements, such as the power necessary to drive the refrigeration unit in the dew-still. A quick calculation shows that, to cool 1.5 cubic metres per second of air from 30°C to 0°C, heat must be removed at a rate of about 25 kilowatts. Refrigerating systems are not very efficient, and this might call for over 100 kilowatts to drive the refrigerator unit. At first sight, this would imply large electric motors driving large pumps, if the usual 'fridge' technique were used. However, we know that moving parts were avoided in the manna-machine, so it is probable that another system, the so-called Electrolux principle, was used. It is not very efficient, but it is very reliable, and has no moving mechanical parts. It is a sealed system, an assembly of pipes, tanks, and cooling coils, which contain ammonia and water. Heat is applied at one point in the system, liquids and gases circulate, and cold appears at another point. There is plenty of spare heat available in the manna-machine to drive such a system, and it works well for small temperature differences such as the 30°C we have assumed.

The Electrolux principle, named after the company which first used it, is that employed in refrigerators which run on gas or paraffin, used in places where there is no electrical power available. If we were to build a system with a cooling capacity of 25 kilowatts today, it would be rather cumbersome. With a technology apparently well in advance of our own, the Lord's engineers were doubtless capable of producing a light, compact unit to do the job.

The light-source and the refrigeration unit are the two main energy-users in the system, and we have shown how these can operate without electrical power. The Ancient of Days could not have incorporated generators of hundreds or thousands of kilowatts output, on weight grounds alone. Furthermore, we have noted that the design avoids moving parts; generators with their bearings and slip-rings would hardly have lasted the forty years in the dust and sand of the desert. It is now clear that the electric power needed was quite small – a few tens or hundred of watts needed to drive the control systems – for the manna drying unit could have worked on heat alone. Powers





14.5 Flow diagram of the machine

at this level are easily generated with no-moving-parts systems even today, with our own technology, using a few silicon solar cells exposed to the laser, or banks of thermocouples, or a nuclear battery, which lasts a very long time. From all this, we can conclude that the design deduced from the texts is a practical possibility.

We have said little about the control-systems of the manna-machine. We could describe the systems needed, but the exercise would mean little to the non-technical, and be superfluous for the technical. From the information – or lack of it – in the texts, we deduce that, apart from routine cleaning, the Israelites had to do very little to keep their machine running and producing manna. Small wonder that it seemed to be miraculous.

To sum up our discussion of the engineering design, we can state that a manna-machine capable of feeding the Israelites could be built by our engineers today – but it would be the size of a house and weigh many tons. Reducing the size and weight is simply a matter of development effort – consider the 'wirelesses' of the 1920s, with their valves, accumulators and HT batteries, compared with today's transistor radios. Even the Soviet *Bios-3 Chlorella* cultivators, producing 2,000 litres of oxygen daily, also produced over 10,000 calories of food value each day, more than enough for the three occupants of the unit. If the surplus *Chlorella* had been processed, and the occupants could have brought themselves to consume it, then they would have been eating – manna.

On circumcision and other customs

We have analysed some ancient traditions, the *Zohar*, and discovered in them a description of a manna-machine – the Ancient of Days. According to the traditions, this object fed the Israelites while they were in the desert. There is also another book, the Bible, which does not appear to mention this machine at all. How can we account for the fact that the Bible says nothing about it?

According to the *Zohar* itself, the reason is that the machine's existence was extremely secret, too secret for it to be mentioned in a book available to the general public. Details of the Ancient of Days were only preserved as oral traditions, by members of the society known as the Reapers of the Holy Field. But our researches lead us to believe that, as the centuries passed, the original purpose of the machine became forgotten, and the true facts about it were lost amongst the masses of mystical speculation which were added to the original data. These amazing details of the Ancient of Days were said to be very important, but to successive generations of Reapers they must have seemed increasingly nonsensical. By the time they were written down, in the *Zohar*, they must have seemed so absurd that little harm could be done by publishing them. For whatever the traditions said, the Bible makes no mention of this extraordinary object, therefore it cannot have existed.

Thus the Reapers must have reasoned: however, we have made a strong case that the Ancient of Days *did* exist, because the traditions give technical details of manna-making which the ancients could not possibly have known, and we have also found a lot of indirect evidence to support our claim in the Bible itself. The Bible, it would appear, has clearly been written, or edited, to leave out all direct mention of this machine; let us go back to the beginning and give our own version, informally expressed, of the events of the Exodus.

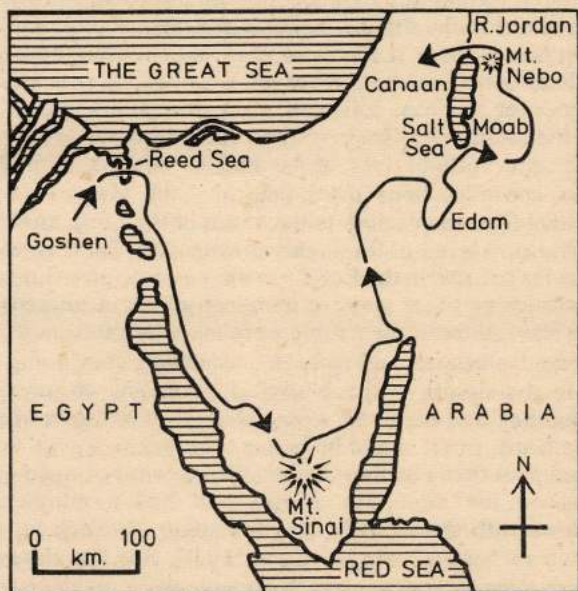
About 3,600 years ago, Egypt was one of the leading countries of the world, and its people enjoyed a high standard of living, both culturally and in material terms. At that time, there were in Egypt some people known as Hebrews, who had come into the country from the east, a depressed immigrant race who did all the menial labouring work of the country. A son was born to a Hebrew couple, and since the king, or Pharaoh, had ordered male Hebrew children to be thrown into the river, the couple arranged for their baby to be left abandoned where the king's daughter was bound to find him. Sure enough, she found him, became attached to him, and brought him up in the king's household. This baby was Moses, later to become the great Hebrew leader. As a young man, Moses became involved in a fight with an Egyptian overseer who was maltreating some Hebrew labourers; as a result of this fight, the overseer died. Moses found it advisable to leave the country for a while after this, so he retired into the desert and got a job as a shepherd. While tending his sheep one day, he was spoken to out of a burning bush by a mysterious personage, the Lord, and after negotiations entered into an agreement with him, on behalf of the Hebrews. The substance of the agreement, or covenant, was that the Hebrews were to obey the Lord's orders without question at all times, in return for which he would get them out of Egypt and turn them into a great nation.

Moses returned to Egypt, and informed the Hebrews of these events. Such was his commanding personality that they accepted him immediately as their leader. Moses went to Pharaoh and asked him to let the people go, but Pharaoh persistently refused. After each refusal, a plague struck Egypt,

culminating with the death of all the first-born children of the Egyptians. This was too much; at last they were allowed to depart – but after they had gone, Pharaoh changed his mind and sent his chariots after them. There then ensued the well-known crossing of the Red (*or* Reed) Sea, with the drowning of all the charioteers.

This story could be a legend, but it is not unexceptional in the circumstances if an extraterrestrial visitor should decide to adopt a group of people and give them a crash course in cultural improvement. He would choose a small group whose cultural slate could be wiped clean, so as to start afresh, giving them a new set of social and cultural patterns.

The Hebrews had been in Egypt long enough to lose much of their national identity, but not long enough to have become Egyptians – so their slate was already half erased. They were also conditioned to a feeling of inferiority by their years of



15.1 The Israelites' route from Egypt

slavery, which would make them more easily dominated by the extraterrestrial. However, he could not go to work on them in Egypt; they had to be isolated in some way before the instruction could start. And so the Exodus into the wilderness was arranged.

The story of the plagues and of the drowning of the charioteers may have been exaggerated in the telling and retelling, before it was written down in the Bible. Nevertheless, it would seem that there must have been some foundation of fact in it and therefore the escape from Egypt must have taken place with some 'miraculous' help from the Lord.

It is possible to ascribe all these miracles and plagues to a superior technology, and in our present state of knowledge we can see how they could have been achieved, even if we couldn't repeat them. Regarding the sea-crossing, the experts agree that it was not the Red Sea, but the Reed Sea – probably an arm of one of the shallow lagoons near the north end of the modern Suez Canal. If this is so, then the crossing becomes credible as a technical feat. What can have been the purpose of this series of plagues, followed by a dramatic escape? No doubt the Lord could have spirited the people out of Egypt secretly and without fuss, if he had so wished. The only purpose can have been psychological – the Hebrews were about to entrust themselves to the hands of the Lord, and they had to be convinced of his mighty powers. The Bible is full of injunctions to 'trust in the Lord' – it was easier to give this trust after witnessing these massive demonstrations of miraculous ability. Nevertheless, the people were faint-hearted, and after a time doubts began to creep back – what were they doing out there in the desert, with no shelter or means of support? Perhaps they had done the wrong thing in trusting in Moses and the Lord, and it would be better to return to Egypt. So, it would appear that a further demonstration was arranged – the landing on the mountain. Moses had had a number of interviews with the Lord before, for some of which he was taken up on 'eagles' wings' (Exod. 19:4), but this time the Lord was coming down – and the people were going to get a grandstand view. And so it was; before their awe-struck gaze, he descended in thunder and smoke upon the mountain-top –

and when the smoke had cleared and the rocks had cooled, Moses, Aaron, and a select group of elders went up to meet him.

According to the Bible, Moses remained for further talks with the Lord, and the others came down to rejoin the rest of the people. But in our view, they did not return empty-handed – they brought with them the manna-machine. At this point, we will depart from the Bible version, and give our account of what happened next.

As they tramped down the mountain, Aaron and the elders were in great spirits. Until then, there had been a lot of talk of 'the Lord', and a few miracles. Only Moses had actually met the Lord, and they had had to take Moses' word for it that the Lord was a great, mighty person. Now, at last, they themselves had with their own eyes witnessed his coming, and they had seen the 'glory', the spacecraft which stood on the mountain-top. Not only this, but they had tangible proof of his powers. For with them, they were carrying a great glittering machine, the awe-inspiring Ancient of Days, which was to feed the people until they came to the promised land. The Lord had given them the Secret Knowledge, the words from Heaven which would enable them to minister to the needs of the Ancient of Days, and make it produce food. When they returned to the camp, the people would be muttering among themselves again – 'what are we doing here? Let's get back to Egypt, at least we know what we're up against there.' But when they had seen this magnificent machine, and had tasted the Bread of Heaven which it would provide, then surely they would accept the authority of the Lord, and entrust themselves, body and soul, to his care?

So when the party got back to camp, the machine was ceremoniously set up on a platform, or 'throne', and the people, silent for once, crept timidly forward to peer at it. At last, they began to understand what Moses had been trying to tell them. What a powerful person this Lord must be, to give them such a magnificent present! The shining metal, the jewel-like hairs, the glittering eyes of different colours – why, it must have cost the Lord a fortune! And then, Aaron says it is going to provide food as well – not even the Egyptians, their former masters, had a god to compare with this! So the people

forgot Moses and the Lord, still negotiating on the mountain, and settled down to worship their new god, with Aaron the High Priest performing the daily mysteries which made the Bread of Heaven come forth.

All went well for a few days, and then suddenly one morning – catastrophe. Despite the most fervent prayers and imprecations, the god remained obstinately silent. The great face remained dark; no dew ran down from the brain; no smoke or fire came from the nose. Standing in the queue with their omer measures, the people shuffled their feet and began to mutter again: ‘we always said it was too good to be true, this new god is obviously unreliable. Let’s get back to Egypt while the going’s good’. Hours later, there was still no manna, and Aaron and the priests were still feverishly working on the machine, hampered by an increasingly hostile crowd. What was to be done? If things continued as at present it would become impossible to fix the machine, and they would have a full-scale riot on their hands. Glancing at the penis-like manna discharge nozzle, Aaron had an idea. Throwing down his tools, he turned and addressed the crowd: ‘O children of Israel!’ he cried. ‘You have incurred the wrath of the god, for he has seen your penises, that they are blocked. This has caused him to block his own penis, and give no more of the Bread of Heaven. Go, therefore, and circumcise yourselves, every man; and when it is done, return and show the god that it has been done. Do this, and once again you will eat of his food’. Impressed by this argument, the people trooped off for the operation to be performed, and Aaron and the priests had the machine to themselves. Once order had been restored, the fault was soon fixed, but Aaron did not restart the machine immediately, sensing that there was political and religious capital to be made out of the incident. So he and the priests took a well-earned rest, until the men of Israel started to return, walking slowly and with their knees well apart. When they had all been lined up in front of the machine, Aaron turned to address it: ‘O great and powerful god’, he cried. ‘Make thy face to shine upon us, and give us of thy great mercy. Unblock, we pray thee, thy penis, even as the children of Israel have unblocked theirs!’ At a signal, the people raised their robes, displaying their bloody organs, and Aaron, with a

great cry, flung himself prostrate before the machine, surreptitiously pressing a button. At once, the face lit up, the fire and smoke came forth, and the dew started to run down from the brain. Their pain forgotten, the Israelites broke into a frenzy of jubilation. Singing, embracing one another, and throwing their robes in the air to expose themselves shamelessly, they gyrated in a wild dance around the machine.

It was at this point that Moses walked into the camp. We can imagine his feeling of shock at such a disgusting spectacle, and his realization that the people had reverted to idolatry instead of worshipping the Lord. He knew at once what had to be done. Knowledge of the machine must be suppressed at all costs. The purpose of the exercise was that Israel should be turned into a great nation – the machine was incidental to this, being provided simply to feed them during their re-education. Having it on public display would only distract them, and tempt them to revert to idol-worship and forget the Lord.

Not only this; there were other reasons. If word got out of the camp that this machine existed, every nation in the Middle East would be out to get hold of it, and Israel was in no position to withstand an attack. What is more, if Aaron were seen to perform his miracle in public every day, his personal prestige might come to eclipse that of Moses – and Moses was the leader of the people, and the only one capable of standing up for them against the Lord. If he lost his position, the result could be disaster, for the people as well as for himself. There was only one course of action – this machine must be kept secret at all costs.

How could this be done? First, it must be kept at some distance from the camp, and the people forbidden to go near it except when collecting their manna. Then, it should be housed in a screened enclosure, the Tabernacle, and only priests admitted to the innermost part. This arrangement would also have the advantage of providing privacy for the priests when working on the machine, and prevent further incidents like the one he had just witnessed. The people were therefore punished by a token number of machine-worshippers being put to death, Aaron himself being spared because of his irreplaceable knowledge. The Tabernacle was built, and the machine installed in it; from then onwards, it disappears from public view.

How can we justify our contention that these events happened, but were left out of the Bible? Clearly, if there had been a machine, it would have had to have been kept secret, for the reasons we have given; and all mention of it would have had to have been kept out of the history books. However, people do not forget events completely – memories of the incident could not have been suppressed, and the people would recall the time when Moses came down from the mountain, and saw something which made him so angry that he broke the Tablets of the Commandments. So the editors of the Bible had two tasks – first, to suppress mention of the machine, and second, to concoct a cover-up story which would account for these folk-tales. We can read the results of their efforts in Exodus 32, the story of the golden calf.

According to this official version, the people gave Aaron their gold, and asked him to make them a calf to worship. When Moses returned and saw them dancing naked before it, he ordered the punishment we have mentioned, though the number said to have been killed, 3,000, must be exaggerated. He also ground up the golden calf, mixed it with water, and made the people drink it. There are a number of holes in this story.

Firstly, Moses would appear to have over-reacted; a man of his calibre should have been able to suppress an outbreak of idol-worship without needing to put people to death, if the idol was a harmless image of a calf. Secondly, the calf was said to have been 'molten' – that is, a casting. Gold is a very soft metal, and it is impossible to grind it. It is also a very heavy metal, and if mixed with water as dust, it falls rapidly to the bottom: indeed, this is how it is separated from rock by 'panning'. If Moses had succeeded in reducing the gold to dust, the Israelites would have drunk the water, and then gleefully scraped the gold dust from the bottom of the cups and pocketed it. Thirdly, according to the Bible, Aaron was one of the ringleaders of the episode, and yet he was spared. There must have been some reason for this other than that he was Moses' brother – men have done worse than kill their own brothers in such a cause. It must have been that he had special skills which could not be replaced. Fourthly, there is the business of the circumcision – but we will deal with this later.

There is another important reason why this episode should have been played down in the official version, and that is prestige. People do not publicize events in their past which are at all discreditable to them, and whether this outbreak of idol-worship revolved around a golden calf or a manna-machine, the Israelites would do all they could to keep quiet about it. If something happened along the lines we suggest, there would clearly be every reason to keep it out of the history books. In fact, we have an example of this happening in the books of Josephus Flavius, the well-known Judaeo-Roman historian. Writing in about +100, Josephus published a comprehensive history of the Jews, largely with a view to bolstering up their public image and countering the anti-Semitic feelings current at the time. His books were written for a Roman readership, and they give considerably more details of early Israelite history than we find in the Bible. However, regarding the golden calf, he says hardly a word – there is no mention of any calf or other idol, and the incident is glossed over as a small ‘rebellion’. So if Josephus left the golden calf out altogether, it is more than likely that the Biblical version is itself a toned-down version of what actually happened.

From what we have read in the *Zohar*, and between the lines of the Bible, we have reconstructed a model of what may be the true story of the time when the Lord came down upon the mountain. This reconstruction has accounted for the story of the golden calf, and has also given us food for thought regarding circumcision. Circumcision is not a Jewish invention; it was practised in ancient Egypt, and still is practised today by many peoples all over the world who have no Jewish connections at all. What is unique about Judaism is the peculiar importance of circumcision in the religion.

According to the Bible, the Lord decreed to Abraham (Gen. 17:9ff) that he and all his male descendants should be circumcised; this was long before the time of Moses. If this was true, then circumcision should have been well established at the time of the Exodus, and boy babies would have undergone the operation as a matter of routine. However, the Bible tells us (Josh. 5:5) that none of the babies who had been born in the

desert was circumcised. This is a very strange state of affairs; during the holiest period of Israel's history, while the people were in the desert and the Lord was with them, they dropped the custom of circumcision which the Lord himself had decreed. The modern explanation for this is that it simply was 'not convenient' under desert conditions. A weaker explanation would be hard to find; life in the desert may have been fairly rough, but it could hardly have been as bad as in the concentration camps of the Third Reich, yet the operation was carried out there. We must look for some other reason to explain why there was no circumcision in the desert, yet the men who went into the desert were circumcised, and afterwards the operation assumed great importance.

One suggestion frequently made is that the operation has certain practical advantages. If carried out in early youth, it is said to enhance development of the penis. No statistics are available on this point; but certain liberated magazines today carry nude photographs of men, who are presumably selected for their generous development, and most of these gentlemen are circumcised.

There is also the question of hygiene; in hot countries particularly, dirt trapped under the foreskin can cause many unpleasant diseases – circumcision clearly reduces such danger. The low incidence of cancer of the womb in Jewish women is said to be due to their husbands' circumcision. The operation is also said to enhance sexual pleasure; but we have not questioned anyone who can claim 'before' and 'after' experience to confirm this. Great though the practical advantages of circumcision may be, they are not enough to account for the central position occupied by the operation in the Jewish faith. Why is it so important?

The answer to this question is provided by the manna-machine. Before the Exodus, the Hebrews were circumcised haphazardly, or not at all, through their contact with the Egyptians. At the time of the 'golden calf' episode, the adults who entered the desert were circumcised, but afterwards, Moses banned the practice because of its connections with that affair. For this reason, none of the babies born in the desert underwent the operation. It was revived afterwards, in an attempt to get the machine to work

again, as we shall see. The reference to Abraham being circumcised by the Lord's decree was added to the Bible story to account for the great importance which was later attached to the operation. (Biblical scholars will note that the story of Abraham's circumcision (Gen. 17) is part of the Document P, the most recent of the sources which were interwoven to produce the first books of the Hebrew Bible.)

We have suggested that, at one time, circumcised penises were displayed to the manna-machine in the hope that this would restore the manna supply. There is evidence to support this both in the *Zohar* and in the Bible. Consider this quotation, bearing in mind that 'yod' was the name for the orifice of the penis, and that the penis itself was sometimes called 'mercy':

(GHA 971) Come and see! Abraham was not called 'perfect' in this 'mercy' until the 'yod' of the penis was uncovered. And as soon as it was uncovered he was called 'perfect'.

'Perfect', it seems, means 'circumcised' here. One tradition states that angels were born circumcised. However, to continue this quotation:

And it is said: (Gen. 17:1) 'Walk before me, and be thou perfect'. Perfect indeed. And it is written: (2 Sam. 22:24) 'I also was perfect before him, and have kept myself from mine iniquity'.

This makes it clear that there was a custom of walking before god and displaying one's 'perfection'; one's circumcised penis. This is supported by this passage from the Bible, in which the Ark of the Covenant (alias the manna-machine, as we will show), is being brought into Jerusalem:

(2 Sam. 6:14ff) And David danced before the Lord with all his might, and David was girded with a linen ephod . . . and as the Ark of the Lord came into the city of David, Michal, Saul's daughter, looked through a window, and saw king David leaping and dancing before the Lord; and she

despised him in her heart. . . . And Michal, the daughter of Saul, came out to meet David, and said: How glorious was the king of Israel today, who uncovered himself today in the eyes of the handmaids of his servants, as one of the vain fellows shamelessly uncovereth himself! And David said unto Michal: It was before the Lord . . .

We may think that David's conduct in performing this undignified dance before the Ark was reprehensible. However, the Bible goes on to say that Michal was barren from that day, and this was a punishment on her for criticizing David. This shows that, whatever we may think, in those days it was quite the done thing to expose oneself to the Ark, though no doubt the dance was normally only done in the privacy of the Holy of Holies. It is in fact David who speaks in 2 Sam. 22:24, quoted in the above passage from the *Zohar*.

However, we are getting ahead of ourselves in these explanations of circumcision; we must now go back several hundred years, to the book of Exodus, where we left Moses and Aaron drawing up plans for the Tabernacle. This was the structure of screened enclosures, which was to shield the Ancient of Days from the prying eyes of the populace. Details of it are given in Exod. 26. The innermost enclosure was made of ten linen curtains, 28×4 cubits, joined together to make a private, roofless tent. Outside this, there was a second such arrangement but of goats' hair, consisting of eleven curtains each 30×4 cubits. The tabernacle had no covering over the top of it. The description in Exod. 26 states that the goats' hair curtains were a covering, but it is clear that the area available would be insufficient to cover the linen enclosure. A cover of 'rams' skins, dyed red' is also mentioned, but whatever it was, the rams' skin cover was not a roof. Apart from anything else, a less suitable roofing material can hardly be imagined if the wool was left on. Moreover, such a wealth of constructional detail for the Tabernacle is given that one can hardly suppose that the substantial frame needed to support such a heavy roof would have not been mentioned.

The rams' skin cover was probably used to cover the holy

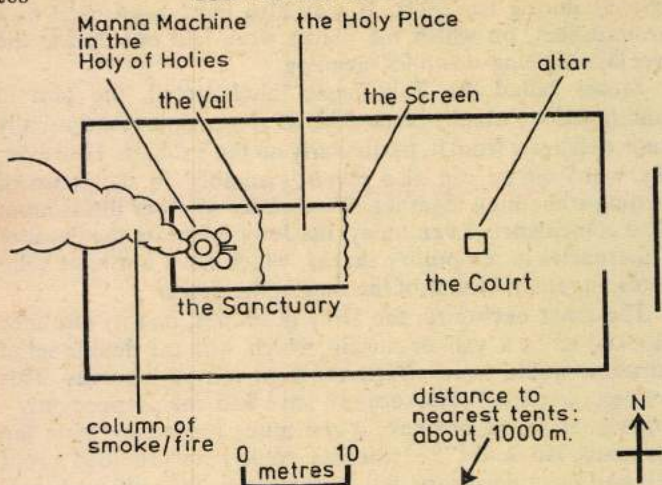
objects during transport. It may also have been used as a groundsheet, on which the pieces were laid out during the weekly stripping-down for cleaning.

Moses called the Tabernacle 'ohel mo'ed, the tent of congregation, which seems odd, as the people were usually kept well away from it, particularly on the Sabbath. However, the word mo'ed can also mean 'assembly' in the sense of putting something together. We wonder whether this is more than coincidence. Even today, the Jews celebrate the Feast of Tabernacles in temporary shacks, which must not have solid roofs, in remembrance of the time in the desert.

The inner enclosure, the Holy of Holies, had its entrance blocked off by a 'vail' or curtain, which, with the double set of curtains, would have effectively kept out prying eyes. This roofless, screened enclosure can have had one purpose only – privacy. It would not have given much protection from the elements. No doubt the Israelites would have provided a roof if it had been necessary, but they did not; they allowed their most sacred objects to stand out in the open. Once again, the manna-machine provides the explanation. To function properly, it needed a copious supply of fresh air, and it belched forth fire and smoke. Such a device could not be housed in an enclosed space unless elaborate arrangements were made for ventilation. So it is clear that the Tabernacle was simply a privacy screen, which is confirmed by the fact that the people were not allowed to pitch their tents within 2,000 cubits of it. They only approached it at the times of services, or manna distributions. Elaborate rituals were enacted, with many sacrifices, to distract from the goings-on in the Holy of Holies, where the priests went about their mysterious business, ministering to the needs of the Ancient of Days. Instant death was the penalty for intruding on them.

From time to time, it was necessary to move the whole structure:

(Exod. 40:36) And when the cloud was taken up from over the tabernacle, the children of Israel went onward in all their journeys. But if the cloud were not taken up, then they journeyed not until the day that it was taken up. For the cloud of the Lord was upon the tabernacle by day, and fire



15.2 Plan of the Tabernacle

was on it by night, in the sight of all the house of Israel, throughout all their journey.

Forty years were spent in the wilderness – the distance from Egypt to Palestine is only about 400 miles, so clearly the object of the exercise was not rapid travel. The Israelites were simply marking time, until the Lord had completed his work, and they were ready to come to the Promised Land.

When the time came to move, perhaps because the site was becoming polluted, the machine was shut down. The people, in their camp 2,000 cubits away, would see that the smoke and fire had disappeared, and would know that it was time to pack up their belongings. In the meantime, the priests drained off the tanks of the machine, took it apart, covered the parts with the rams' skin and badgers' skin covers, and carried it off. The platform on which it had stood, the 'throne', would be demolished, and the tabernacle walls dismantled. The procession would then set off, with the priests and their carts leading the way, the carts being used for the less-holy objects. The 'Ark' itself was always carried, using carrying-poles: no doubt it was less subject to shock and vibration that way. This

precious object led the way, followed by the carts, and then, 2,000 cubits behind (Josh. 3:4) the people of Israel.

At this point, it would be well to explain some customs surrounding the priests. The priests, or Levites, were a hereditary caste, the male descendants of Aaron. They were not permitted to follow any trade or occupation, but were forced to live on the sacrifices offered by the people, devoting themselves to full time religious observance. When the Temple was built in Jerusalem, they were responsible for organizing the services there. However, three Temples were built and then destroyed, and after the final destruction the priests were left with no occupation. In spite of this, even today, they are set apart among the Jews. Many of them bear the surname Cohen or Kagan, which means priest. In modern Israel, the ancient regulations are strictly applied, and it is impossible for a Cohen to get a divorce, though it is easy enough for an ordinary Jew.

While in the desert, the role of the priests was to offer the bread 'of their God':

(Lev. 21:6ff) . . . and the bread of their God they do offer. . . . Any priest . . . that hath any blemish, . . . he shall not come nigh to offer the bread of his God. He shall eat the bread of his God, both of the most holy, and of the holy. Only he shall not go in unto the vail, nor come nigh unto the altar, because he hath a blemish.

This is usually taken to mean offering sacrificial food *to* God, but the repeated use of the word bread suggests that it is incorrect. Obviously, they are offering the bread *of* God – manna – to the people, as Christian priests do today. In fact, there is a distinction between the two foods, the burnt offerings and the bread *of* God:

. . . the offerings of the Lord, made by fire, and the bread of their God they do offer . . .

This passage also distinguishes between the Lord of Israel, and *their* god, the priests' own private god, the secret one to whose needs they attended in the Holy of Holies. It is also interesting that the bread comes in two grades – holy and most holy. These could correspond to the 'small mercies' and 'great mercies' of the *Zohar*. No priest with a 'blemish' was allowed

beyond the 'vail' – the slightest wound could harbour bacteria, which would play havoc with the manna supply if they got into the machine.

We may think that the priests had an easy life, living off the offerings of the people. However, in the desert, when they had real work to do, their life was not all beer and skittles:

(Num. 3:4) And Nadab and Abihu [the two elder sons of Aaron] died before the Lord, when they offered strange fire before the Lord, in the wilderness of Sinai . . .

This phrase 'offered strange fire' often puzzles Bible readers; certainly as it stands, the passage does not make much sense. However, the Hebrew words have other meanings, and the passage could equally well read 'they approached the loathsome fire before the Lord'. If by 'Lord' the manna-machine was meant, this then makes sense, and the passage may well be a description of an industrial accident.

Not only the priests, but the people also, had much to endure in the wilderness. The iron discipline of the Lord, the lack of profitable or interesting occupations, and the interminable religious services must all have been extremely wearisome. Even the diet of manna began to pall after a time, as we have mentioned before:

(Num. 11:4ff) And the mixed multitude that was among them fell a-lusting; and the children of Israel also wept again, and said: 'Who shall give us flesh to eat? We remember the fish, which we did eat in Egypt freely; the cucumbers, and the melons, and the leeks, and the onions, and the garlick: but now our soul is dried away; there is nothing at all, beside this manna, before our eyes . . . and the people went about and gathered it, and ground it in mills, or beat it in a mortar, and baked it in pans, and made cakes of it: and the taste of it was as the taste of fresh oil.

Reading this, it is impossible to believe that the manna was not a real food. One can imagine the poor housewife, desperately trying to devise fresh recipes in an attempt to make the diet less monotonous: obviously the initial wafers-made-with-

honeymoon soon came to an end. This could account for the fact that the Jews are now among the most gastronomic people in the world. In spite of the limitations imposed by kosher cooking, the Jewish cuisine ranks with that of the French and the Chinese – some say it even surpasses them.

The 'mixed multitude' in this passage were the Egyptians who had joined the Exodus from Egypt, just coming along to watch the miracles. They were treated as very second-class citizens, and according to the *Zohar* (2:191a) they were given the rejected manna, for which they were expected to be duly grateful.

After further tribulations, the people again complain about their rations:

(Num. 21:5) And the people spake against God, and against Moses: wherefore have ye brought us up out of Egypt, to die in the wilderness? For there is no bread, neither is there any water; and our soul loatheth this light bread.

The use of the word 'light' here raises an interesting technical point. Modern bread has a density of about 0.33 g/ml, about a third that of water; ancient bread may have been rather heavier. We have calculated that the machine produced 800 kg of manna a day. 6/7 of this was distributed daily, making 600 family rations. The family ration was thus 1,140 grams of manna; an omer was 3.7 litres, so the density of the manna must have been about 0.31 g/ml, about the same as that of modern bread and probably of the ancient loaf. Why then, does the Bible describe it as 'light'?

The explanation is not hard to find; the Hebrew word is QLQL, which also means 'vile' or 'despised' – this would appear to be the intended meaning, and it is the fault of the translators of the English Bible that we have been forced to do all this arithmetic. The translators did not like to think that the ancient Israelites would have used such abusive language about their 'Bread of Heaven' – but then the translators did not have to eat nothing else for forty years.

It is quite understandable that a diet of nothing but manna for forty years should cause dissatisfaction, but there is no

doubt about its nutritional value. It was a disorganized, demoralized rabble of runaway slaves who straggled into the desert; what came out was a highly-disciplined, tightly-organized military force, against which the Canaanites could not stand. Whatever the Lord did to them in the desert certainly produced results. Word of their exploits, and the miracles of their Lord, spread before them, striking terror into the hearts of the local inhabitants (Josh. 2:9). The miraculous dryshod crossing of Jordan, and the destruction by 'trumpets' of the walls of Jericho seem almost superfluous; the city would probably have yielded without a fight. However, the Lord was always one to drive his lessons home. So, led by the 'Ark of the Covenant', the Israelites came triumphantly into the Promised Land.

The Jordan crossing marks several important events. The ones which concern us most are the failure of the manna supply, and the mass circumcision which accompanied it:

(Josh. 5:3ff) And Joshua made him sharp knives, and circumcised the children of Israel at the hill of the foreskins. And this is the cause why Joshua did circumcise: All the people that came out of Egypt, that were males, even all the men of war, died in the wilderness by the way, after they came out of Egypt. Now all the people that came out were circumcised: but all the people that were born in the wilderness by the way as they came forth out of Egypt, them they had not circumcised . .

As Francis Schaeffer points out:

This circumcising was a strange thing for Joshua, a keen military commander to do. He was incapacitating his whole fighting force, an absolutely unmilitary act. It is silly to march your men right into the teeth of the enemy and then disable them. Joshua did it, nevertheless, because God told him to.

So none of the children born in the desert had been circumcised, but suddenly the custom was revived at a seemingly inopportune moment. The Bible offers no

explanation for this remarkable circumstance – that it was ‘not convenient in the desert’ is a guess made much later.

What would appear to be a more likely explanation lies, once again, with the manna-machine. At the time of the ‘golden calf’, there had been a temporary failure of the manna; thereafter, the supply must have been regular, otherwise the people would not have complained about it as much as they did. The manna became taken for granted, and suddenly, on arrival in the Promised Land, it stopped again. This happened at the time of Passover, which is a springtime festival. At that season of year, food stocks are low, and the current year’s crop is not yet ready. The manna could not have failed at a more inconvenient time, and Joshua, the new leader, was faced with the problem of feeding the troops. Desperate measures were necessary. Once before, long ago, the manna had failed; Aaron had told the men to go and get circumcised, and that seemed to have done the trick – at any rate, the manna started again. So, it was worth trying – everyone, down to new-born babies, was circumcised at the ‘hill of the foreskins’ – but to no avail. The penis of the Ancient of Days remained obstinately blocked:

(LHA 440) And the manna did not appear to be derived from this dew except at one time; the time when Israel was wandering in the desert. And then the Ancient One of All fed them from this place. But afterwards, it was not found.

So the Ancient of Days had failed them at last, after forty years’ faithful service:

(Lam. 3:22) It is of the Lord’s mercies that we are not consumed, because his compassions fail not; they are new every morning; great is thy faithfulness.

Ever since that time, Jews have faithfully circumcised their baby sons, early in the morning of their eighth day (Lev. 12:3). What began as an attempt to restart the flow of ‘mercy’ from the Ancient of Days has now become a ritual branding with the mark of an ancient faith.

Another interesting speculation is inspired by the Jewish custom of eating matzoth, biscuits made of unleavened bread, at the Passover festival. The explanation usually given for this is that when the Israelites left Egypt there was no time for them to bake bread using leaven, or yeast, for the journey. Bread baked in this way needs some hours to rise before it can be put in the oven. Bread made without yeast can be baked immediately after mixing the dough.

We have seen that, when customs survive, the explanations for them do not; later, a new reason for the custom must be found, which is not necessarily the true one. In fact, we could almost define a 'custom' as something which people do, without knowing the reason for it. In the case of the unleavened bread custom, the usual explanation does not stand up, because not only is the bread without yeast eaten, but all yeast must be removed from the house for the duration of the festival. Any yeast, or any bread made with it, must be disposed of; it is usually ceremonially sold to a non-Jew, the rabbi frequently acting as agent in the transaction. This leads us to suppose that the reason for the custom is not because there was no time for the bread to rise, but because yeast was forbidden.

The children of Israel went into the desert with their Lord, but they were not allowed to take any yeast. How do we make sense of this? We do not see how yeast can have any religious importance. But, where biological processes are concerned, such as manna-making, it is vitally important. If one single spore of yeast had entered the machine, all the sugars in the culture would have been quickly converted to alcohol and carbon dioxide, with disastrous results. If this had happened, the culture would have had to have been dumped, the machine sterilized, and a fresh start made. The Israelites could have had a whale of a party, but they would have gone hungry for days afterwards. The meticulous weekly time-table would have been completely disrupted. Therefore there were strict precautions; yeast was absolutely prohibited, the Tabernacle was kept 2,000 cubits from the camp, and the priests were expected to observe strict rules of hygiene. In the clean air of the desert, these precautions were sufficient; the people had their 'daily bread' for forty years.

Part Five

IN CONCLUSION

What was the Ark?

In previous chapters, we have identified the 'Ancient of Days' with our manna-machine, and we have also stated that it is identical with the Ark of the Covenant. How can we justify this last statement? According to the Bible, the Ark was a richly-decorated wooden box, which the Israelites built according to a design given to them by the Lord, (Exod. 25:10 ff). It was kept in the Holy of Holies of the Tabernacle, and later in the Temple, where nobody ever saw it except priests. Its function was to house certain relics, such as a sealed jar of manna and Aaron's magical rod (Heb. 9:4). On the other hand, the Bible also states that it was a very dangerous object – it frightened the Philistine army (1 Sam. 4:7), and when they captured it, it caused them to become diseased; such was their terror of it, that they sent it back to Israel (1 Sam. 5). On arrival in that country, it was handled by Israeli farmers, who were struck dead (1 Sam. 6:19); later, when it was being taken to Jerusalem, it killed Uzzah (2 Sam. 6:6-7). The only people who could handle it safely were the Israelite priests.

In this chapter, we will examine these events in more detail, and we will show that there were in fact two Arks – the first one was the Ancient of Days, the manna-machine, which was in Israelite hands from the Exodus up until the destruction of the Temple of Solomon; the second Ark was the wooden box, which was constructed when the Temple was rebuilt, to house

the few magical relics that remained. The Bible that we read today was only put into its present form after the rebuilding of the Temple – and the priests who edited it, and who had been responsible for the making of the wooden box, were the ones who confused the box with the original Ark – either by accident or design – and rewrote the text assuming that the box that they had made was a replica of the original Ark. A considerable time elapsed between the destruction of the first Temple and the building of the second, and during that time memories of the original 'Ark' were lost; it was seen by the High Priest alone, once a year. And so it is that we find what seem to be two Arks in the Bible – first, a miraculous object which strikes people dead, and second, a harmless-sounding box. So well kept was the secret of the Ancient of Days, that it took very little deception for its existence to become forgotten; once the old High Priest was dead, his successors would assume that the box which they saw was the same as the original one of miraculous properties – and when they rewrote the Bible, this assumption would find its way into the text. The details of the Ancient of Days were to survive only as a few strange legends, preserved by the Reapers of the Holy Field.

When we last saw the Ark of the Covenant in our narrative, it was being carried triumphantly across the Jordan, leading the Israelites into the Promised Land. Up to this point, the Bible has been full of references to the Ark, and the Tabernacle; Moses and the Lord are conferring before it on almost every page. But after the Jordan crossing the Ark disappears into oblivion; it is hardly mentioned at all. It is an odd fact that the holiest object of the Israelites is said to have been a wooden box – and it is even odder that they should suddenly lose interest in it. Why should this be? As we have pointed out, the manna failed after the Jordan crossing; if it was the Ark that provided the manna, and it failed at this time, it is natural that they should lose faith in it, particularly after they had all undergone a fruitless circumcision in an attempt to restore the supply. This is why the 'Ark' disappears from the remaining pages of the Book of Joshua, and is mentioned only incidentally in the Book of Judges.

Why did the manna fail? The machine had functioned for forty years, and by the end of that time the priests must have

been thoroughly familiar with its operation. There is no mention of any accident befalling it. It would appear that the answer is quite simple – its job was completed. The Lord had promised the Israelites that he would lead them out of Egypt, turn them into a civilized nation, and then take them to the Promised Land. The capture of Jericho marked their arrival in that country, which 'flowed with milk and honey'. From then on, it was up to the Israelites to feed themselves.

The machine would have required fertilizer, fuel rods, and occasional spare parts, which were delivered from time to time by 'angels' (Dan. 7:13). So the Lord withdrew supplies, and very soon the manna stopped flowing. It was not worth his while to collect the machine, even if he had wished to risk the disruption that a landing in a populated area would cause. The Israelites were welcome to keep it, as a reminder of his visit. In fact one of its titles is the Ark of the Testimony, *or* Evidence; it was the proof that the Lord was a real being, different from other gods. After forty years, the Lord had probably had enough of the Israelites and, having kept his side of the bargain, he departed. The fall of Jericho marks the end of the really spectacular miracles; the Israelites may have imagined a few afterwards, unable to believe that the Lord had finally gone for good, but there is none to compare with the earlier ones.

Another piece of evidence for the departure of the Lord is that communications with him appear to have broken down at about this time. Previously, the leaders had had many long conversations with him in the Tabernacle, using the Urim and Thummim. These words mean lights and perfections, and they refer to unknown objects which were fitted into the High Priest's breastplate (Exod. 28:30). They were used to obtain advice or counsel:

(Num. 27:21) And he shall stand before Eleazar the priest, who shall ask counsel for him after the judgement of Urim before the Lord.

Earlier, we discussed the evidence for radio communication to be found in the *Zohar*, and we now find that the Urim and Thummim confirm it. It seems that they were a radio link with

the Lord, who most likely was parked in Earth orbit during the forty years. Being non-technical, the Israelites were unable to distinguish between communication by radio, and communication by dreams and visions. To them, there was no difference between the ability to make one's voice come out of a box, and to make it sound in someone else's head. Saul tried all these methods, and had no luck:

(1 Sam. 28:6) And when Saul enquired of the Lord, the Lord answered him not, neither by dreams, nor by Urim, nor by prophets.

The Urim remained silent, even though there is reason to believe that they were still working. For Josephus, writing in the first century, states that the 'stones' in the breastplate were still shining as late as about - 100:

(*Antiquities* III 8:9) For as to those stones, which we told you before, the high priest bare on his shoulders, which were sardonyxes . . . one of them shined out when God was present at their sacrifices; I mean, that which was in the nature of a button on his right shoulder, bright rays darting out thence, and being seen even by those that were most remote; which splendour was not before natural to the stone . . . for so great a splendour shone forth from them before the army began to march, that all the people were sensible of God's being present for their assistance. Whence it came to pass that those Greeks, who had a veneration for our laws, because they could not possibly contradict this, called that breastplate *the Oracle*. Now this breastplate, and this sardonyx, left off shining two hundred years before I composed this book, God having been displeased at the transgressions of his Laws.

Whiston, the translator of Josephus, adds a footnote here stating that this failure of the breastplate occurred in the days of John Hyrcanus, the last good High Priest of the family of the Maccabees.

Here is an account of a 'miracle' that was not a secret one. It did not take place in the Holy of Holies, but in the outer part of

the Temple. It was seen even by those right at the back of the congregation, and not only by Jews but by sceptical Greeks as well. To the ancients, it was perhaps a miracle that a jewel should shine with an unnatural light, but to us today such 'jewels' are a common sight: they are to be seen on the front panels of all types of electronic instruments. Even the simplest mains-operated equipment has such a jewel, which shines to indicate that it is switched on. Very often it has a glass, faceted like a cut gemstone, to cause a glinting effect and make the light easier to see when the surroundings are bright.

So there is an account of a device, which according to the Bible was used for communication with God, and which according to Josephus incorporated a 'jewel' which lit up at certain times. Perhaps both these reports are of 'miracles', but there is a simpler explanation: the breastplate was a radio set. According to the Bible, Moses and the priests could communicate with the Lord in the Holy of Holies; his voice was said to emanate from a point in space between the two cherubim over the Ark (Exod. 25:22, Num. 7:89). Perhaps, more prosaically, the voice actually came from a loudspeaker mounted in the breastplate, a heavy object slung on the priest's chest. Nowadays we see soldiers and policemen wearing such 'breastplates': our technology has caught up with the Lord's.

After the Lord had gone, the jewels continued to light up, but no voice came forth. The Lord had departed, but there was still life in the batteries. Perhaps the priests attempted to obtain advice by interpreting the pattern of illumination of the jewels – for there were twelve of them; certainly, if we believe Josephus, the shining breastplate was sometimes shown to the people, to convince them that the Lord was still with them. In his translation of Josephus, Whiston adds a footnote (*Antiquities* V 2:1) which states:

By *prophesying*, when spoken of a high priest, Josephus means no more than consulting God by Urim . . . this was revealed to the high priest by an extraordinary voice from between the cherubim, when he had his breastplate, or Urim and Thummim, on . . .

Perhaps, before the breastplate packed up completely, the high priest could still cause a single jewel to light up by working the on/off switch, and thus persuade the people to accept his authority. At any rate, the lights were the central feature of the breastplate, for the word 'urim' means 'lights'; thummim, according to the official translation, means 'perfections', but it could also mean 'those which act strangely or cause miracles'. Whatever they were, there is no doubt that they were miraculous enough to give the priests a hold over the people, long after the Lord's departure had left them with no real basis for power. When at last the batteries ran down, the priests could only put it down to some transgression of God's Laws: they probably had no idea either of what had really happened. However, many centuries were to pass before this happened; even though the manna failed at Jericho, the lights of the breastplate still worked, a powerful reminder of the Lord and his miracles.

After its final failure, the manna-machine was taken to a shrine at Shiloh, where it no longer occupied a central position in the life of Israel. However, a dedicated band of priests continued to tend it, and for them, its failure may not have been totally unwelcome. They were out of the public eye, now that the pressure to produce the daily ration had been removed. The heat was off, and they could devote their time to the study of the machine; they probably still received enough sacrificial offerings to live in reasonable style. They were the founders of the society known as the Reapers of the Holy Field, and the original Lords of Measurements of the *Zohar*:

(GHA 208) [The nose] and also all the parts of the Ancient of Days are seen, and they are not seen; they are seen by the Lords of Measurements, but they are not seen by anyone else.

In the peace and security of Shiloh, they could devote their time to poking and prying, studying and measuring, ferreting out the innermost secrets of the Ancient of Days. Perhaps they also made attempts to get it going again – attempts which may have a connection with the Yom Kippur rituals.

Yom Kippur, the Day of Atonement, is the holiest day in the Jewish calendar, falling in August or September of the Gregorian calendar. The exact date varies, as Jewish years are of irregular lengths. The word Kippur, translated as 'atonement', in fact means 'cleaning' or 'wiping off'. It is the day when all sins are wiped off, enabling a clean start to be made. During the time in the desert, the day does not seem to have been very important; the earliest reference is in Exod. 30:10, where the Lord gives instructions for certain sacrifices, and that every adult male should pay atonement money of half a shekel, according to the standard silver shekel kept with the other sacred objects in the Tabernacle. It would seem that the Day of Atonement assumed its present importance later, after the Temple was built.

The Temple in Jerusalem was unique. There can only be one Temple, while any gathering of ten adult male Jews can form a synagogue. Three Temples were built and destroyed, on the same site; a site which is at present occupied by a mosque. Since Israel reacquired the site in Jerusalem, it has been suggested that the Temple should be rebuilt; however, either the mosque would have to be demolished, hardly advisable in the present political climate, or another site chosen. What is more, some maintain that if it were rebuilt, the old forms of worship used there would have to be reintroduced, complete with animal sacrifices, which are hardly suitable in the twentieth century. In fact, the Temple might have been rebuilt a long time ago, when these objections did not apply – but it was not. The reason seems obvious, as if its sole purpose was to house the 'Ark of the Covenant', and since this has been lost there is no purpose in rebuilding the Temple.

Every synagogue has its Ark of the Law – a handsome box used to house the Scrolls of the Law – but these arks are not to be confused with the original, unique Ark of the Covenant. We now see that the tradition of uniqueness is true with a vengeance – the Ark of the Covenant was a huge, glittering machine, the physical proof that the Lord of Israel had indeed visited his people.

One of the procedures laid down for the Day of Atonement was that all the objects in the Holy of Holies should be

anointed with oil. Now, anointing with oil is something which has a religious significance, derived from this Jewish custom. It also has an engineering significance; it is an excellent way of stopping things from rusting, and improving their appearance. If a group of priests were charged with the task of preserving a holy relic, a gleaming metallic object, surely one of their principal concerns would be to keep it shining. In the dry climate of Palestine, an occasional wipe-over with an oily rag would be enough to preserve its sheen. This custom may have led to the later rituals of the Temple, where the high priest put on clean linen clothing, disappeared into the Holy of Holies, and emerged plastered with oil. According to Ps 133:2, it ran down to the hem of his garments. According to Exod. 30:26, the 'Ark of the Testimony' was to be anointed. All this is not what we expect of men of religion; it is more typical of mechanical engineers, as many a wife can confirm who has seen a clean pair of overalls wriggling its way under a dirty motor car. But as we have seen, there are many strange things in the earliest history of the Jews.

The details of the ceremony which took place in the Holy of Holies have been forgotten, because it was so secret that it could not be written down, nor could it even be discussed anywhere except in that innermost sanctum. When the third Temple was finally destroyed, it naturally became impossible for these secrets to be transmitted, and as a result we know very little of what actually happened during that most secret ceremony which took place on Yom Kippur. However, we do know that the proper pronunciation of the Holy Name, IHVH, was lost, because it was only pronounced on that occasion; and according to the *Zohar*, the pronouncing of the Name was supposed to make the 'mercy' or manna flow down.

From this, it would strongly suggest that the original Yom Kippur ceremonies were attempts to restart the machine, or at least to give it an annual clean-up. Theologians state that Yom Kippur means 'the Day of the Wiping (off of the sins of Israel)', but its original meaning must have been 'The Day of the Wiping (over of the Ancient of Days with an oily rag)' (Exod. 30:26). During the desert wanderings, Moses and all the priests had had access to the Holy of Holies, but afterwards, in the Temple, only the high priest was admitted,

and on that day alone. As we have said, it is not known what he did in there – but there is one indication that it was not a religious ceremony as we understand it today. According to the *Zohar* (3:67a), he had round his ankle a golden chain, which he trailed in behind him. The purpose of this was so that the other priests could drag his body out if anything went wrong and he was killed or injured. Why should this precaution be necessary? There are recorded instances of mystics dying while in a religious ecstasy, but it seems much more likely that the danger threatening the high priest, the danger which made the chain necessary, was a real, physical one, that which had killed the sons of Aaron, and Uzzah. High priests were not necessarily very old men, who could drop dead at any moment; whatever was in the Holy of Holies must have been very dangerous indeed. Knowing that it was a manna-machine, the Ancient of Days, we can reconstruct the ceremony which was enacted on that one day in the year.

We suggest that the following procedures were carried out. Intoning the *Book of the Mystery*, the operating instructions, the priest would check various connections, and run through the list of the thirteen parts of the beard. Then, pushing a switch, he would simulate the manna-making process on his own person. First, he would sprinkle water on his head, symbolizing the dew from the brain; smoke inhaled from a sacrificial fire would be breathed upwards, simulating the exhaust action, and then he would pour oil over his beard, to encourage the heavenly oil to run down through the thirteen parts. He would light the seven-branched candlestick (menorah) to symbolize the lighting up of the Face, and then he would present the show-bread, the ritual food display, to the machine, to encourage it to give of the same. Finally, displaying his own, circumcised penis, to stimulate the unblocking of that great shining organ which was the source of all life, he would cry aloud that most terrible Name, and fall into an ecstasy of prayer.

Of course, nothing whatever happened. Once again, the children of Israel had failed to be good enough for their Lord – or at least, that was how they took it. It was not that they needed the manna – what they were seeking was a sign of approval from Heaven, a flicker of light in that great Face, or a



16.1 Uniform and equipment of the High Priest, according to Exodus 28, *Zohar* 3:67a and *Antiquities* III 8:8

puff of smoke from those mighty nostrils. So every year, the most elaborate preparations were made to ensure the utmost purity of the people. After much prayer and fasting, the sins of Israel were ritually transferred to two scapegoats: one was then slaughtered on the altar; the other driven out of town to die in the desert. In spite of all this, the Ancient of Days remained dark and silent, and each year the priests urged the people to try a little harder next time. Although they had done

nothing wrong, the people still were unable to earn a sign of approval from Heaven, and from this there developed a sense of permanent guilt.

The concept of original sin is a unique feature of the Jewish and Christian faiths, and we can now explain this tradition as being due to the failure of the manna-machine. Other early religions centred on having a good time, with feasting and orgies, fertility rites, and sacred prostitutes available to all and sundry in the temples. The Jews alone maintained a grim obsession with sin and guilt, and led their lives according to a set of complicated rules and regulations in the hope of atoning for it. What started as an annual attempt to restart the manna-machine has become today a solemn festival, in which Jews review the events of the year past, and seek ways of leading better lives in the year to come. From the mechanical systems of the manna-machine there has sprung a whole philosophical and ethical system, one which is still flourishing today. The cults of Bel and Marduk are long dead and almost forgotten; but the religion of IHVH, the unpronounceable god, is still very much with us.

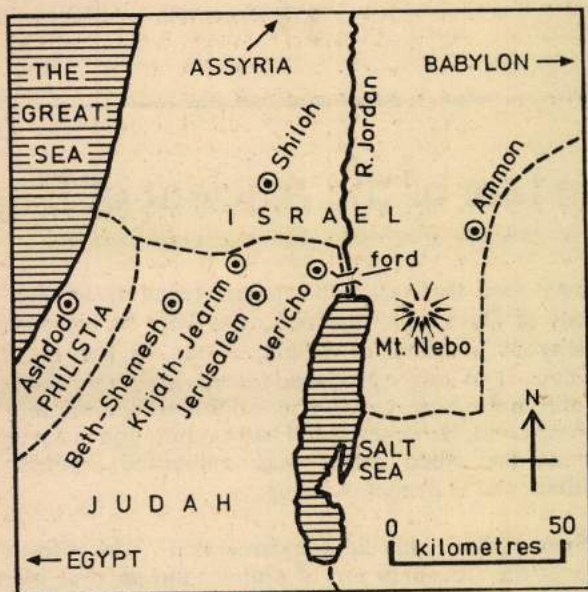
The fate of the Ancient of Days

We have seen that, after the manna failed at Jericho, the Ancient of Days, alias the Ark, was kept in comparative obscurity in a shrine at Shiloh, about 40 km north of Jerusalem. It no longer produced manna, and so we read very little of it in the history of the period following entry into the Promised Land. However, it still had a reputation as a magical talisman; for when Israel was embattled against the Philistines, and in danger of losing:

(1 Sam. 4:3ff) . . . the elders of Israel said . . . let us fetch the Ark of the Covenant out of Shiloh unto us, that when it cometh among us, it may save us out of the hand of our enemies . . . and when the Ark . . . came into the camp, all Israel shouted with a great shout . . . and when the Philistines heard the noise of the shout, they said, what meaneth the noise of this great shout in the camp of the Hebrews? And they understood that the Ark . . . was come into the camp. And the Philistines were afraid . . . and they said: Woe unto us! . .

The Philistines were a nation of tough warriors, who inhabited the coastal strip south of what is now Tel Aviv. Is this story Israeli propaganda, or were the hard-bitten Philistine soldiers really afraid of the Ark? The Bible states that it was a wooden

box, hardly a terrifying object, but if the Bible story has been edited, and the Ark was in fact a fearsome machine of extraterrestrial (or heavenly) origin, then it all falls into place. The sight of it would be enough to convince the most hardened sceptics that the Israelites had powerful friends in the sky.



17.1 Map showing places associated with the manna-machine

However, no help was forthcoming from Heaven, and the battle was won by the Philistines. They captured the Ark, killing its attendant priests, and carried it off in triumph to Ashdod, their capital, where it was set up in the temple of their god Dagon. Miraculously, the image of Dagon was mutilated, and the men of Ashdod were stricken with 'emerods'. This is an old English word meaning haemorrhoids or piles, but the Hebrew word (OPLIM) is listed in the dictionaries as 'swellings' or 'tumours'. The Ark was hastily removed, but the emerods struck wherever it went.

Piles do not strike suddenly. They form slowly over a period of years, and are caused by lack of exercise and incorrect diet. The tumours that struck the Philistines were obviously something different, making themselves felt within a few days. The Ark was only in the country of the Philistines for seven months, and a number of different parts of the country were affected as it was moved around. This plague of 'emerods' may have been a miracle, or a story invented for propaganda purposes – but if the Ark was a manna-machine, it is not necessary to look for a far-fetched explanation. We have deduced from the *Zohar* texts, and from our own scientific knowledge, that the machine was powered by a nuclear source – and parts of it would have remained dangerously radioactive for hundreds or thousands of years after it stopped working. Unlike the Israelite priests, the Philistines did not have the secret knowledge; they did not know which parts were safe to touch, and which not. So they handled it indiscriminately, and were affected by the sores which are a common effect of radiation poisoning. The sores would have appeared all over their bodies, not just in their 'secret parts'. The translators of the King James Bible have put this phrase into 1 Sam. 5:9, but it is lacking in the original Hebrew. As we have said before, religious translators often take great liberties with their material.

Sores and ulcers are two of the common signs of radiation poisoning, but there are others, such as diarrhoea and vomiting. The Bible does not mention these, but the historian Josephus gives us a fuller account:

(*Antiquities* VI 1.1) At length God sent a very destructive disease upon the city and country of Ashdod, for they died of the dysentery and flux, a sore distemper that brought death upon them very suddenly; for before the soul could, as usual in early deaths, be well loosed from the body, they brought up their entrails and vomited up what they had eaten . . .

Whatever killed the Philistines, it was certainly not piles; it sounds much more like heavy doses of nuclear radiation.

Whatever happened, the Philistines were sufficiently

frightened to return the Ark, a most remarkable occurrence. What ancient nation, having defeated another and captured her holiest object, would abjectly send it back again? What is more, they were so frightened of it that no man would accompany it – they put it on a cart, harnessed two cows to it, pointed it in the correct direction, and let it go.

Here another miracle is supposed to have happened, for the Philistines kept the cows' calves, but nevertheless the cows ran away, taking the Ark with them. Few things will persuade a cow to leave her calf, so perhaps this was a miracle – but if the cows are harnessed to a cart on which there is a huge, glittering, metallic object, the like of which they have never seen before, it is very likely that they would forget their calves and run in blind panic, hoping to escape from the monstrous thing behind them. At any rate, these cows did not stop until they came to Beth-Shemesh, over the Israeli border, where they were rewarded by being promptly sacrificed. However, this did not protect the poor farmers of Beth-Shemesh from retribution – seventy of them were struck dead, because they were not priests and were not worthy to touch the Ark. (According to Josephus, the large number given in the Bible (50,070) is corrupt, and seventy is correct). Although the farmers were good Jews, they died; this does not make religious sense, but it does make engineering sense – like the Philistines, they did not know how to handle the Ark safely. The survivors wisely refused to touch the object, and sent for the experts who took it away to Kirjath-Jearim.

There it remained in a fresh shrine for many years, until King David decided to bring it to Jerusalem. Seeing it as a means of uniting Israel politically, he organized a triumphal procession. However, once again, disaster struck; the Ark still packed a punch after all these years. Seeing it about to topple off the cart, Uzzah put out a hand to steady it – and was at once struck dead (2 Sam. 6:7), even though, according to David, he was a very good man and the last person likely to incur the wrath of the Lord. As a result, progress was delayed for three months, during which time improved transport arrangements must have been made. When all was considered safe, the Ark finally entered Jerusalem, David being so overcome with emotion as to perform the undignified dance we mentioned

earlier, a dance which would normally have been performed only in the privacy of the Holy of Holies.

On arrival in the Holy City, the Ark was at first installed in a tent (2 Sam. 7:2), similar to the one which had housed it when in the desert. This is something which even the theologians find difficult to explain. Here was the holiest object of Israel's faith, and yet when it was brought to the middle of a great city it was housed in most inferior accommodation. Traditionally, the reason is that David, whose career up to that time was not exactly spotless, was considered 'unworthy' to build a proper Temple. However, this would not have stopped others from erecting one – what is more, one could equally well say that David *should* pay for a Temple as atonement for his earlier sins. We believe the true explanation is that the Ark was a manna-machine which required a copious supply of fresh air, and which gave off hot exhaust fumes. Such a machine could not possibly be housed safely in a closed building if it was to work – and it is likely that David had hopes of getting it going again.

At the time of David, the Hebrew colonists in Palestine were on the verge of splitting into two rival kingdoms, Israel and Judah, and it was in an attempt to prevent this that David brought the 'Ark' into the limelight again. If it were a wooden box, these events would be difficult to explain; but if it were a manna-machine, it is easy to see why it enjoyed such a chequered career. During the Exodus, it played an important part as the provider of manna, but when it failed the people lost faith in it and it fell into obscurity. Although it had long before ceased to perform its mechanical function, David, with the vision of a great leader, saw for it another role – it could become a ritual object, performing the political function of uniting Israel. But how much better would it be if it could be restored to working order. Even a teaspoonful of manna would be enough to convince the people of the reality of their glorious heritage, and to persuade them to stand united against their foes!

We have already seen that David first installed it in a tent at Jerusalem, suggesting that he had hopes of getting it to work – and this is confirmed in those Psalms of the Bible which are attributed to him. The Psalms are full of references to the

secret lore of the machine, and they contain almost half the number of references to 'mercy' – or manna – in the Old Testament. David's great military and diplomatic successes were as nothing to him, unless he could restore the machine to working order. He seems to have spent much of his time working on it, days and nights, perhaps trying different pronunciations of the Holy Name, IHVH, but these efforts brought him nothing but ridicule:

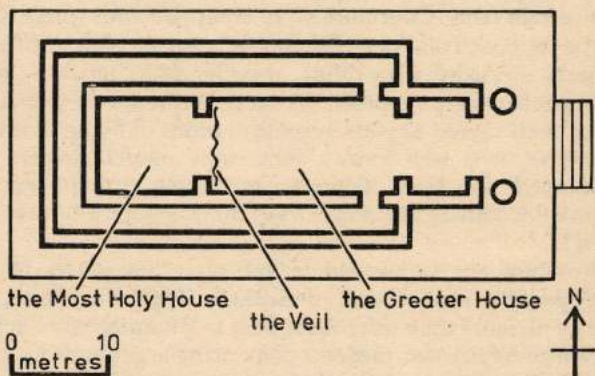
(Ps 22:1) My God, why hast thou forsaken me? Why art thou so far from helping me, and from the words of my roaring? O my God, I cry in the day-time, but thou hearest not; and in the night season, and am not silent . . . Our fathers trusted in thee; they trusted, and thou didst deliver them. They cried unto thee, and were delivered . . . but I am a worm, and no man . . . all they that see me laugh me to scorn.

King David may not have been the author of the Psalms; according to some, they were written long after his time and were dedicated to him. However, Zoharic traditions state that David used to get up at midnight to pray before the Ark, and this Psalm, even if written much later, must surely refer to his nocturnal vigils. Certainly the authors of this book have been sorely tempted to 'cry in the daytime' and 'roar in the night' when a machine on the bench has obstinately defied all efforts to make it work properly. David was a highly successful ruler, and he had no reason for self-doubt as far as his kingly achievements were concerned. The self-castigation evident in this Psalm can only derive from his secret failure – his inability to resuscitate the Ancient of Days.

Putting ourselves in his shoes, we can see that David was in a difficult position. The religion specifically banned the worship of any idol or 'graven image', so he could not show the machine to the people. Its very existence had to be kept secret, and yet it was the one thing which would prove once and for all that the old story of the Exodus was true, and that the Lord of Israel was different from other gods. Ideally, what was needed was a sample of fresh manna – but by this time the machine must have been manifestly beyond repair,

so we can understand David's hopeless frustration.

David was succeeded as king by his son Solomon, the builder of the first Temple. A less ascetic character than his father, Solomon preferred luxurious living to endless prayer sessions in the Tabernacle. However, perhaps to justify his own extravagant way of life, he built the Temple to house the Ancient of Days. The Temple layout (see Figure 17.2) followed that of the Tabernacle itself, consisting of an inner Holy of Holies, an intermediate Holy Place, and an outer courtyard. This plan is said to be unique in contemporary temple architecture, and is described in 1 Kings 5. The Holy of Holies was furnished in the same way as the desert tabernacle, but, being a permanent structure, it was much more lavishly constructed, and the finest materials were used. Two cherubim, ten cubits high, stood one on either side of the 'Ark'. They were made of olive-wood overlaid with gold, with a wing-span of ten cubits.



17.2 Plan of Solomon's Temple (*cf* Figure 15.2) Note that the width of the doors permits the entry of a large object.

What is a cherub? To most people, the word suggests a plump, naked child, equipped with absurdly small wings, sometimes figuring in the corners of old maps, with puffed-out cheeks, representing the winds; at other times, equipped with a bow and arrow, aping the pagan god Cupid. Looking in the dictionary, we find that the word is listed as 'a certain

symbolical figure'; not very informative. In fact, nobody knows what a cherub is, and this is the reason why the Hebrew word is not translated in the King James Bible. However, according to the *Encyclopaedia Judaica* (*EJ*), cherub, KRB in Hebrew, may be an inversion of RKB, meaning to ride or drive, or a chariot. Such transpositions of consonants are common in Semitic languages. In support of this, *EJ* cites: (2 Sam. 22:11) 'And [the Lord] rode upon a cherub, and did fly . . .', this quotation being repeated in Ps 18:10. We might also mention a phrase in Ps 68:5, where the Lord is described as 'riding on the heavens' (RVKB ORBVTh). The word ORBVTh, translated as 'heavens', in fact means 'plains or deserts'. According to commentators the word is used *metaphorically* in this one place alone to mean 'heavens' – but it is simpler to assume no metaphor, and take the passage as referring to the Lord riding (RKB) across country on his cherub (KRB).

Although the scholars do not know what 'cherub' means, we have certain facts. Cherubim were equipped with wings, so it may be supposed that one of their functions was flying. *EJ* also connects the word with riding, driving, and chariots – so it seems a reasonable supposition that the ancient Israelites had, among their sacred objects, representations of flying chariots. Of course, it is well known that straw model aircraft are worshipped in New Guinea, but such primitivism is unthinkable among the ancestors of the developed nations . . . or is it?

Cherubim are mentioned in various other places in the Bible, notably in the book of Ezekiel. Regarding these, we need do no more than refer the reader to Blumrich who, in *The Spaceships of Ezekiel*, presents convincing arguments to show that the cherubim were flying devices; parts of the spacecraft seen by the prophet in his 'visions'. Whatever cherubim were, it is certain that they were not fat-faced children with vestigial wings; these creatures are a comparatively recent invention, and one most unlikely to have been sacred to the ancient Israelites. Josephus sums it up:

(*Antiquities* VIII 3.4) Nobody can tell, or even conjecture, what was the shape of these cherubims [*sic*].

King Solomon has the reputation of having been a noted magician, familiar with many ancient esoteric secrets. Having built the Temple, he probably spent some time studying the object it was built to house, though he may have given up hope of getting it to work again. We know that he was a sybaritic character, and he was probably more interested in the imposing appearance and rich ornamentation of his Temple, and in the machine's potentialities as a centrepiece in impressive ceremonies, than in anything else. Although the Temple had windows, these were probably symbolic and not large enough for any successful attempt at indoor reactivation of the manna-machine to have been safe. (Even today, all synagogues must have a window, such is the strength of these ancient traditions.)

By the time of Solomon, the Ancient of Days had become a ritual object, to be studied and marvelled at, a reminder of the old days when the Heavenly Ones trod the soil of Earth working miracles. The Book of Proverbs, parts of which are attributed to Solomon, contain many references to the secret lore, and the Song of Solomon is probably a hymn of praise to the Ancient of Days. Certainly, it makes better sense if it is read that way. Solomon, as mentioned above, would probably have been more interested in the ritual aspects of the machine than the mechanical ones, and quite likely it was at this time that it ceased to be thought of as a source of manna, and took on the aspect of a mystical symbolic pattern or abstract concept, study of which was the sole passport to Heaven.

However, this transformation could not be completed as long as the Ancient of Days still existed. It was still there, in the Holy of Holies, available for the privileged few to inspect. By that time, it would have been showing signs of wear and tear. The priests had had their fill of tearing out the wires and pipes tracing connections, parts would have been hanging in every direction, and the cover plates that formerly concealed the innermost mysteries either bent, or torn off and missing. During the battle with the Philistines, no doubt, it would have acquired quite a few dents and scratches from the slashes of swords and the stabs of spears and javelins. No improvement in its appearance can be expected from the wild cart-ride out of Philistia, and from the various accidents which occurred

on the way to Jerusalem. It would have been a sorry-looking machine that glowered down from its throne in the Holy of Holies. But battered and bent, scratched and dented, it was still an object of awe to the high priest who annually made his hopeless attempt to reanimate it. Each Yom Kippur, the ritual complete, the great Face would remain dark, the entrails silent, the twin nostrils obstinately free from fire and smoke; shaking his head sadly, the high priest would go forth once again to announce to the people that they were still not good enough for the light of life to shine upon them. Instead, they had to be content with the blessing:

(Num. 6:24) The Lord bless thee, and keep thee. The Lord make his face to shine upon thee, and be gracious unto thee . . .

But even though there was no manna, the Ancient of Days itself remained in the Temple – until the coming of the Babylonians.

As mentioned earlier, the 'Ark' had been brought to Jerusalem with a view to maintaining political unity. This may have worked, for at any rate the Hebrews held together until the end of Solomon's reign, about – 922, when they split into two rival states, Israel and Judah. Israel was the more northerly, while Judah to the south retained the capital city, Jerusalem. Israel later fell to the Assyrians, and Judah succumbed to Egypt, the Egyptian king Shishak taking the opportunity of stripping the Temple of its valuables. A frieze at Karnak records the loot brought into Egypt on that occasion. Later, the Egyptians lost Judah to the Assyrians, who also took their pick of the Temple contents. Later still, the Babylonians usurped the leading position of the Assyrians in Mesopotamia, and the unfortunate Judaeans found themselves with yet another set of oppressors. Hoping to play them off against the Egyptians, they revolted – but no Egyptian help was forthcoming. Babylon attacked with overwhelming force, and in – 597 Jerusalem surrendered. Leading citizens were deported to Babylon, and the city was plundered – but despite this, Judah continued to agitate, until

Babylon attacked again, completely destroying the city, and the Temple in -587. The precious contents of the Temple were supposedly taken back to Babylon as scrap metal. Many years were to elapse before the second Temple was built, and the city reoccupied.

According to the Bible and other records, the 'Ark' finally disappeared at the time of the Babylonian destruction of the city. Nobody knows what happened to it. Can we guess what its fate might have been?

First, it is obvious that it must have survived the earlier plunderings of the Temple by the Egyptians and the Assyrians. There is nothing in the Bible to suggest that they might have removed it, yet if they had had the chance they would have done so. Not only was it the most holy object of the Israelites, but we believe it was also a machine of most remarkable appearance. No conqueror of Judah could have failed to carry it off in triumph. Likewise, there is no record of any 'emerods' afflicting these peoples, and the frieze at Karnak does not depict any object which might have been the Ark, be it wooden box or manna-machine. We can speculate that what happened was that these irreplaceable mementoes of the Lord - the Ancient of Days, Aaron's magic rod, the jar of manna and the breastplate - were at once removed to a safe place when danger threatened. Josephus records that the breastplate, at any rate, was still in Israeli hands some 500 years later. The conquerors were welcome to help themselves to the other contents of the Temple, the gold, silver and bronze vessels and implements, for these could soon be replaced after a few years' successful trading. The true treasures of Israel were spirited away into hiding at the slightest threat of invasion. They were not on public display, so nobody except the few entrusted with the operation need know that they had gone, and the fewer who knew the hiding-places the better. The move would have had to have been carried out in great secrecy, for if the people had known that their relics had gone, morale would have suffered.

We can therefore deduce that, as the Babylonian army swarmed across the borders of Judah, the well-rehearsed emergency routine swung into operation, and under cover of night, the priceless objects were spirited away. The question is, where to?

Turning to the authoritative *Encyclopaedia Judaica* again, it seems that there were three traditions current as to the fate of the Ark. The first is that it was taken to Babylon. This has already been discussed, but it should be added that at the time of the destruction of the Temple, there was a large population of exiled citizens of Judah in Babylon. It is hardly likely that they would have failed to notice the fact, and to have recorded it, if the Ark had been taken there.

The second tradition is that it was hidden under the floor of the wood storehouse of the second Temple. This is a possibility, but the second Temple was not built until many years after the destruction of the first, so the Ark must have been hidden outside the city during the intervening period.

The third tradition is found in the *Talmud* (Yoma 52b, 53b) and in the apocryphal book of 2 Maccabees (2:4). According to this version, the Ark was hidden by the prophet Jeremiah, who flourished during the reign of King Josiah from -640 to -609. It was hidden in a cave on the mountain from which Moses viewed the Promised Land before his death, and the entrance was walled up. Afterwards, Jeremiah's companions were unable to retrace their route, so the site of the cave was lost. As we have shown, there was every reason why the Ark should be hidden outside the city, and not kept in the Temple. Josiah was an efficient king who tried to restore the golden age of David and Solomon, and we have every reason to think that he would have ensured the safety of the Ark. However, he may have been just a bit too efficient, and consigned it to its hiding place many years before the actual invasion. By the time it was safe to recover it, nobody was left who could remember the hiding-place. It would seem very likely that this version is the true one, and that the Ancient of Days was not destroyed, but was preserved more or less intact - and may very well still be there. Francis Schaeffer writes:

We do not know what happened to the Ark. It is conceivable that it was destroyed when Jerusalem was laid waste by Babylon, or it may have been brought back from Babylon, and been in the Temple when Titus demolished it in 70 AD. Perhaps the Ark did not come to an end. It is not farfetched to think that it exists somewhere and will one day reappear.

According to Deut. 32:49, Moses died on Mount Nebo, which is identified with the modern Jabal an-Naba, the same name in Arabic. This mountain is 802 metres high, and located about 19 km east of the northern end of the Dead Sea, and 26 km south-west of Amman, capital of Jordan, in which present day kingdom the mountain stands. The name Nebo (NBV) means simply 'height', but Deut. 32:49 also names it as HR HOBRIM, the mountain of the regions beyond (the Jordan). This name is applied to the whole range of hills of which Nebo is the highest peak, so the field of search should include any hill from which it is possible to see across the river. The summit of Nebo is only about 50 km east of Jerusalem, and there is a ford conveniently placed for crossing the Jordan. Geographically, it is quite possible that the relics could have been taken there at short notice; with proper organization, the journey could be accomplished in a single night. No doubt, for additional security, the treasures were hidden in different places, accounting for the fact that the Ark alone was lost on this occasion. This range of hills is the nearest desolate area to the city, and no doubt its rugged rocks provided a variety of suitable hiding-places.

After the destruction of Jerusalem, there were further deportations, and only the poorest and least influential of its inhabitants were left to pick over the ruins. However, the Babylonian empire soon crumbled, and Judah fell into the comparatively enlightened hands of King Cyrus of Persia, who made funds available for the Temple to be rebuilt, and encouraged the Jews to return. However, neither effort was very successful. Nearly seventy years elapsed before the second Temple was completed, and the Jews of Babylon showed no great desire to return home. The pattern of Jewish life had been set; like many Jews today, the exiles found life outside the homeland more agreeable and profitable, and though they were prepared to make substantial donations towards rebuilding, they would not consider returning to live in the homeland. It was at this time that spoken Hebrew started to decline, to be replaced by Aramaic, otherwise called Chaldaic, the language of Babylon and of the *Zohar*.

Perhaps the reason that it took so long to rebuild the

Temple was the loss of the Ark. The primary purpose of the first Temple had been to house this relic, and now it was gone, why bother? However, completion of the second Temple saw a religious revival, and it was probably at this time that the wooden box described in the Bible was made, to house the remaining relics. The Hebrew text of the Bible we read today was put into its present form by scribes of the second Temple period, who had never seen the Ancient of Days even if they knew about it. So it was natural for them to edit the texts on the assumption that the first 'Ark' had been similar to the one which they knew. But while these men were busily rewriting their history books, others were at work – the Reapers of the Holy Field. No writing and editing for them – their secrets were too precious for anything but word-of-mouth preservation. As our investigations show, through them, down through the ages, there came to us the true secret lore of Israel – the operating instructions for the Ancient of Days, the manna-machine which had fed their ancestors in the desert, in that legendary time when the Lord was with his people.

Some speculations

At the beginning of this book, we described how we, two ordinary engineers, picked up a curious book, and became interested in its contents. We were led back through nineteenth-century black magic to mediaeval mysticism. We were led to the study of ancient languages and curious Jewish customs and traditions, right back to the time of the Exodus. At last, the true nature of the Ancient of Days was revealed: it was a manna-machine. We traced it forwards again through time, as far as - 587, when it disappeared into the bowels of a mountain east of Jordan. And we believe that it is still hidden there. How could we find it? And if we did find it, how might it help to solve our problems of today, and of the future?

We have demonstrated that the machine must have been nuclear-powered, and that parts of it were still radioactive enough to kill people several hundred years after it stopped working. This indicates that the nuclear elements in it had a long half-life, and that even today, thousands of years later, it will still be radioactive. We do not know what type of reactor was used, and how well it was shielded, but nevertheless there may be sufficient radiation escaping from the machine to enable it to be detected through several feet of rock. The original walled-up cave entrance may have been covered by a rock-fall, making it even more difficult to find; in any event a painstaking survey will be necessary, and thousands of

radiation measurements will have to be made and compared. The machine will not be detected simply by flying around in a helicopter with a Geiger counter, expecting the meter needle to shoot off-scale.

The manna-machine will also have contained magnetic materials, and it should be possible to detect it using proton magnetometers to measure the gradient of the Earth's magnetic field. This method is much more sensitive than is the usual treasure-hunter's metal detector, which would not be good enough. However, that area is littered with the débris of many battles, ancient and modern, most of which will show up on the magnetic survey, and the searchers would experience many disappointments and accumulate a huge heap of junk before they were successful.

Technically, then, there is no reason why the Ancient of Days should not be found. However, there are other problems besides technical ones, particularly in a sensitive area such as the Middle East. The Israelis will claim, on good historical grounds, that the machine is theirs – yet it is at present located across the river in the country of Jordan. The Jordanians may not wish to stir up trouble by looking for it even if they could spare the resources for an expedition, and in any case the area of interest is in a battle zone, within sight of Israeli-occupied territory. Conditions would hardly be ideal for serious scientific archaeological work, unless the search could be made in an atmosphere of international cooperation. Supposing, then, that a multinational expedition could be mounted, and the machine found, what would be the result?

There would certainly be a tremendous gain in terms of technical knowledge. The ancient Israelites, having no technical resources, could only count the pipes and wires, trace the connections, and measure the various parts. But modern researchers, with a technology approaching that of the machine itself, would be able to analyse the materials used in it, and very soon it would be possible to reproduce it. A new generation of Lords of Measurements, working in laboratories around the world, would drain the machine of its information, and it could then be restored to a rebuilt 'Temple' – or museum – in Jerusalem, under international control.

One technical problem which the machine might help us to

solve is that of using nuclear power safely. The Lord would not have given the machine to the Israelites if there had been any danger of their turning it into an atom bomb, deliberately or otherwise. Probably he would have anticipated that it might survive until Earth technology had caught up with it, and its workings were understood, so it is certain that it uses a working principle which is inherently safe. Copying this, we in turn could then be able to make safe reactors, and safe manna-machines.

The benefits would not only accrue to high technology – military and aerospace science – but also to low technology, for we must remember that this machine was successfully used to feed several thousand technically-unsophisticated people for forty years. Reproduced in quantity, it could do the same for the world today – in parts of India, Africa, and South America, there are many millions of people whose needs are no different from those of the Israelites starving in the desert. A manna-machine in every village would provide a basic foodstuff enabling the people to survive, giving them a breathing-space during which they could develop their own agriculture to the point where they were self-sufficient. In short, discovery of the machine might put an end to the world's food problems, though it would not put an end to agriculture as we know it – manna is a boring food, and the people would still hanker after 'fresh fish, cucumbers, melons, leeks, onions and garlick'.

In our discussion of the physics of the machine, we assumed a model using a fission reactor, with uranium or plutonium as fuel. These reactors are easy to make, but uranium is a rare metal, and supplies are limited. Plutonium does not occur in nature at all, and has to be made from uranium in breeder reactors; it is also extremely poisonous and difficult to handle. Bearing these facts in mind, it is possible that the manna-machine used some other type of reactor, perhaps one which did not expend these or similar materials, but which used some cheap element as fuel. If we could find the machine, it might even yield us the secret of hydrogen fusion, the nuclear reaction which fuels the furnaces of the Sun. For years now, scientists have been seeking the secret of hydrogen fusion, which is safe and clean, and uses one of the most

abundant elements in the Universe for fuel. So if we could locate the manna-machine, it might enable us to solve the world's food problems, and even yield the answer to our energy crisis. Is it too much to ask that the peoples of the Middle East should settle their differences for long enough for this machine to be found?

Technical progress aside, discovery of the machine might also be a political boon – the unification of mankind, and not just in the Middle East. When it is found, we will have in our hands the final, physical proof that intelligent life exists outside this planet. There is no way, as we have pointed out, that an earlier civilization, capable of producing a manna-machine, could have existed on this Earth without leaving visible traces. At last we will be certain that we are not alone, and that there are others out there. The Lord, we know, was friendly to us – but there may be others who are not. There is nothing like a potential common enemy to make people pull together. Perhaps the ancient Israelites knew this too, for we have seen that they took great trouble to preserve the machine, in spite of the problems it brought them. One of its names was the Testimony (ODVTh), or proof:

(Exod. 16:33) And Moses said unto Aaron, take a pot, and put an omer full of manna therein, and lay it up before the Lord, to be kept for your generations . . . So Aaron laid it up before the Testimony, to be kept.

They preserved the sample of manna, and the machine it came from, as the proof that the Lord was in Heaven; if we find the machine, we shall have irrefutable proof that there are 'gods' in the sky. But, in the light of our work, presented in this book, is there any further reason to doubt that space beings have visited this Earth, and that the Lord of Israel was one of them?

The Ancient of Days was a piece of space-going hardware, originally intended for use in spacecraft, but modified for the Israelites. Not only did it produce food, but also it regenerated the spacecraft atmosphere, absorbing carbon dioxide and producing oxygen. Its exhaust gases would have been cooled, purified, and returned to the cabin air supply, and the spaceship would have become a replica of the Earth's

ecosystem in miniature. Here on Earth, plants capture the Sun's energy on the day-time side of the planet, and grow to provide food for the animals, including ourselves. Waste heat is radiated into space from the night-time side of the planet. In the spacecraft, the nuclear reactor replaces the Sun, and heat is disposed of via radiating surfaces exposed to space. The flow of energy from one to the other fuels all the life processes within the system.

The space-going function of the machine is also apparent from its very design. We have deduced that it was very bulky, but light enough to be carried by a few men when its tanks were drained. The name 'Ancient of Days' also means 'Transportable One of the Tanks', implying that it consisted of a number of tanks, which would contain mostly empty space. In an interplanetary or interstellar spacecraft, which remains in space and never lands on a planet, lightness is essential, but bulk is unimportant. In the emptiness of space, there is no wind resistance to overcome, and streamlined shapes serve no purpose. However, every pound of mass that has to be accelerated adds to the fuel requirement, and so lightness is of great importance. To us it seems clear that the Ancient of Days, being bulky and yet light, was originally designed for space use, though a modified version was produced for the Israelites.

This leads to two further questions: who was the Lord, apart from a space-ship commander, and why did he choose the Israelites? We can answer these, but first we must consider the broader question of the origins of life on Earth.

The present belief is that the early terrestrial atmosphere consisted of a mixture of gases, usually known as the 'primordial soup'. The gas mixture was acted on by lightning discharges, and cosmic and other radiation, which caused simple organic molecules to form. A range of aminoacids was made by this means by Stanley Miller, who sparked a mixture of four gases (methane, ammonia, hydrogen and water vapour) in the early 1950s. Since then, a much larger number of organic molecules has been prepared from simple ingredients by using different radiations. However, nature had millions of years in which to experiment, and during this period random combinations and recombinations of the

simple molecules led to the formation of more complex ones, which were capable of reproducing themselves. The earliest living matter, then, consisted of single, self-replicating organic molecules, but gradually more complex organisms evolved, in which different types of molecules collaborated in partnership. From these there then evolved more and more complicated living things, until the whole range that we know today had come into existence – with many types falling by the wayside, as we know.

This, then, is the current scientific view of how life evolved on Earth. It is very attractive, because we are able to prove the first stage – production of organic molecules in the primordial soup. However, if this were the *only* way in which life evolved on this planet, there should be fossil evidence indicating a steady progression of life-forms, of gradually increasing complexity. Geologists, working downwards through the strata towards older and older rocks, have in fact found less and less complex fossils as would be expected, but there are certain levels where a sudden jump occurs. The Cambrian rocks are the oldest which contain fossils in any number, and below them there are almost none. According to geologists Harland and Rudwick, 'The emergence of the Lower Cambrian fauna . . . can reasonably be called a "sudden" event'. Below the Cambrian strata there are in most parts of the world great thicknesses of pre-Cambrian rocks, perfectly suitable for preserving fossils, yet containing only a few doubtful traces of soft-skinned organisms. Yet suddenly, at a certain point in time, a whole menagerie of animal life appears, every phylum, or major group of animals, being represented. It has been suggested that this apparently sudden event is due to the evolution of shelled animals, which make better fossils, but even soft-bodied creatures can leave traces such as tracks and worm-holes, which are known to appear in later fossil-bearing rocks. These sudden events, which occur at several points in Earth's geological history, have also been ascribed to sudden increases in solar activity. It is suggested that the Sun may sometimes become more active, throwing out more radiation, which will penetrate to the Earth's surface causing more mutations, and hence the evolution of new species. However, experiments have shown that increased

radiation is more often destructive of life, and some ascribe the extinction of the dinosaurs to this.

Yet another weakness of the presently-accepted view of evolution is that it assumes that more-complex life-forms are necessarily more successful than less-complex. If this were not so, it is argued, then more-complex creatures would rapidly die out, and the Earth would be populated today by nothing but viruses. However, there are animals as complex as ourselves, and still also quite a number of viruses around. We are not necessarily more successful than they – in 1918, an influenza virus killed several million people world-wide. There is a remarkable balance in nature as we observe her today, with life-forms at all levels of development to be found. Sometimes we wonder if this marvellous equilibrium is due entirely to nature, or if some other forces may be at work.

So, it seems that life did not evolve steadily on this planet, but in a series of fits and starts. At certain times, often many millions of years apart, whole collections of new species suddenly appeared. Changes also occurred in between these occasions, but much more slowly. The same is to be seen in the evolution of our own species, *Homo sapiens*. Anthropologists and archaeologists simply cannot account for the sudden appearance of, for example, Cro-Magnon Man. Amid a population of brutish-looking Neanderthals, there suddenly arose a new race of people similar to ourselves, from whom we are descended. Oddly, Cro-Magnon men had bigger brains than modern man; this and many other differences are discussed in great detail by Flindt and Binder in *Mankind – Child of the Stars*. How can we account for this strange fact, that from time to time the development of life on Earth receives a sudden boost?

We have concluded that Earth must have received a visit from space-beings some 3,500 years ago, and that the purpose of this visit was the improvement of a certain section of the population – the Israelites. From the legends of other peoples, we may infer that this was not the first such visit – and we may speculate that it will not be the last. The simplest answer to this question of life's evolution, and the one which fits the facts best, is that Earth was seeded with life from elsewhere. Perhaps simple organic molecules did evolve spontaneously as

the scientists suggest, but then space visitors (let us follow Flindt and Binder and call these visitors 'starmen'), noting the slow development of life on Earth, released a selection of more advanced creatures to speed things up a bit. (We do not, of course, claim originality for this idea.) From time to time through prehistory, the starmen have returned, adding more species at each visit, and perhaps eliminating some too. We can compare them with gardeners, who go round their plots regularly, planting here, weeding and pruning there, eliminating pests and promoting a balanced growth with best use of the available soil area. However, these gardeners are different from their earthly counterparts, for they also take an interest in the cultural achievements of their charges.

One of the great puzzles of archaeology is the sudden emergence of new cultures. The earliest traces of human occupation in Egypt are of a stone-age culture, and yet suddenly, on the ruins of its abject hovels, there arise magnificent temples, built using techniques which are the envy of modern stonemasons. In his *Arts and Crafts of Ancient Egypt*, Flinders Petrie notes that the first-dynasty Egyptians could produce turned vases of black granite of a quality which later dynasties could not achieve. It is doubtful whether such vases could have been made without the use of a special lathe.

The history of Ancient Egyptian technology is one of a rapid rise from nothing, followed by a slow decline. All the evidence points to a sudden injection of knowledge from outside, which was gradually forgotten. The evidence suggests that something, or somebody, is occasionally visiting Earth, and taking a hand in her development – and we see no reason why this assistance should have ceased.

Many scientists today must sometimes wish that they were able to move forwards in time. Dedicated geophysicists, for example, would dearly love to go to sleep like Rip van Winkle, and wake up some million years hence to see if the continents really had drifted in the way they had predicted. They would be unable to go back to their long-dead critics and say: 'I told you so', but they would still feel the timeless thrill of knowing that they had been right.

Let us suppose that somewhere, at some time in the distant

past, a culture evolved the capability of interstellar flight at near-light speeds. Even within the framework of our present knowledge, this is by no means unthinkable. Members of the British Interplanetary Society are at present studying a theoretically-possible starship design. This starship would have a large shield behind it, coupled to the vehicle itself by long shock-absorbers. Small pellets containing tritium, super-heavy hydrogen, would be ejected behind the shield, and detonated by laser beams. The vehicle would be propelled, in effect, by a series of small H-bomb explosions, and one of the problems would be to ensure the safety of the planet from which the ship was departing! The vehicle might also have an electromagnetic scoop in front of it, to sweep up interstellar hydrogen in its path for use as fuel. A ship of this type would be able to reach a fair fraction of the speed of light, but tens of years (ship-time) would be needed to reach even the nearest stars. This means that the crew would somehow have to be kept in suspended animation for the voyage, though this would also relieve them of the boredom of traversing vast interstellar spaces. Alternatively, the ship would be the home of a self-contained community, with generations being born and dying during the voyage, who knew no other world than the confined space of their vessel. We know that such a ship is possible, though we could not sit down and build one today, in the same way as we could not immediately build a manna-machine. Some technical advances will be necessary, but we know them to be achievable.

Ships of this type are still basically rockets, in that they can only build up speed by ejecting material behind them. The speed which can be attained depends on the exhaust velocity, and the mass of material available for ejection: the reaction mass. These factors combine to restrict the achievable speed to a modest fraction of that of light. However, recent discoveries indicate that we are on the verge of a breakthrough – the generation of gravitational fields.

Everyone knows that a magnet is a piece of metal which attracts or repels other magnets. The magnets interact through magnetic fields; we can draw a picture of the field of a magnet by scattering iron filings on a piece of paper placed over the magnet. Gravitational fields are generated by lumps of matter

– however, there are no north or south poles as with magnets; all lumps of matter attract all other lumps of matter – there is no observed gravitational repulsion. In some ways magnetic and gravitational fields are similar – but in one most important way, as far as we are concerned, they are different. We can generate a magnetic field without using a permanent magnet, simply by passing an electric current through a coil of wire. But there is no way known to us of generating a gravitational field; we have to do it the hard way, by manipulating heavy lumps of matter. Recent discoveries in nuclear physics may indicate that gravitational fields can be generated, in which case it will be possible to drive a spacecraft without ejecting reaction mass – instead of throwing matter away to push ourselves along, we can annihilate it completely, and feed the huge power released to gravitational generators. This will enable spacecraft to get very close to the speed of light.

Suppose a ship set off from Earth on a round trip to Sirius, 8 light-years away. However fast it went, it could not get back sooner than 16 years later, according to Einstein. But, the closer to light-speed it could travel, the less time the journey would take as far as the occupants of the ship were concerned. If they accelerated at one gravity (about 9.81 m/s^2) for half the journey, then decelerated similarly for the other half of the journey, the journey would take only 9 years. However, Earth-based observers would have timed the trip at 19.5 years. Time passes slower for travellers who are accelerated to high speed; this fact has been proved by flying accurate clocks round the world in jet aircraft. The longer the journey, the greater the advantage, since the closer the ship's speed would get to that of light at the mid-point. A single journey of 100 light-years would take only 9 years ship-time; the cost in time and energy would be no greater than that for the return trip to Sirius, only 8 light-years away from Earth. What is more, an interstellar tourist prepared to pay 50 per cent more than the cost of this journey in time and money would be able to go ten times as far: a single journey of 1,000 light-years would take only 13.5 years.

Taking matters still further, a dedicated astrophysicist, observing an interesting object at the other side of our galaxy – 60,000 light-years away – might wish to view it at close

quarters. At a constant 1g acceleration, he could be there and back in 45 years. If he were exceptionally fit, stocky and muscular, he might make the trip at 2g and return only 24 years older. In either case, however, just over 120,000 years would have elapsed on Earth during his absence, and he would return as a total stranger.

For the mathematically-minded, we can give the following, refreshingly simple, formula which will enable them to plan their trips around the universe.

A 'leg' is defined as a journey between two points, distance $2x$ light-years apart, in which the ship accelerates at a rate g for half the distance, and decelerates at the same rate for the other half. $2t_s$ is the elapsed ship-time for the leg, and $2t_e$ the time which passes on Earth, both expressed in years.

The acceleration must be expressed in light-years per year per year. By a fortunate coincidence, Earth gravity is 0.9684 light-years per year per year, which may be taken as 1 to simplify the calculations.

Then:

$$t_e = g^{-1} \sinh gt_s$$

$$x = g^{-1} (\cosh gt_s - 1)$$

From these formulae, the Earth-time and distance for half-legs may be found for different ship-times. Ship-times for given distances and Earth-times can be calculated using the formulae for inverse hyperbolic functions.

From the above formulae, it is clear that it is possible to cover distances comparable with the size of the universe within a human lifetime, provided that one does not slow down or stop. Flying a relativistic spacecraft is like driving an underpowered heavy goods vehicle. Having got up speed, you don't stop for anything. From this, it is not surprising that we do not receive guests from other parts of space at frequent intervals. Having laboriously wound our spacecraft up to top speed, we do not slam on the brakes lightly. Such evidence as we have supports this view: extraterrestrials seldom visit us, but when they do come, they stay for long enough to make the journey worth while.

Such journeys are not possible for us at present, as our

feeble rockets cannot sustain high acceleration for years at a time. Our probes coast around the solar system with minimal velocities, taking as long to reach the outer planets as would a constant-g ship to reach the nearer stars. However, if gravitational generators were available, such trips would become possible and travellers would be able to cover huge distances in the course of a human lifetime, obviating the need to travel in a state of suspended animation.

So interstellar travel is possible, provided that resources are available to build the ships, and dedicated crews can be found to man them. The crews could never hope to return and find their home planet as they had left it; the ships would have to be mobile colonies spawned by the home planet, and moving out into space seeking new worlds. If they ever came home, the crew would be strangers, and might even find that their stay-at-home cousins had degenerated into savagery or wiped themselves out. On the other hand, they might find themselves greeted as 'gods'. So it is clear that interstellar commuting for individuals with their present life-span will never be possible, unless some form of travel can be found which avoids the restrictions of Einstein's relativity theory. Ships will set out with the sole purpose of scientific study and colonization – which, in its broadest sense, is the spreading of life through the galaxy. And that is what we have found happening here, on Earth. First, it seems, simple life-forms were released, to form an ecological infrastructure for more advanced types. At each subsequent visit, higher forms of life were added to the pyramid of creation, culminating in the introduction of Cro-Magnon man.

Membership of a star-travelling community would provide an ideal opportunity to carry out experiments requiring a long time-scale. Biologists, anthropologists and sociologists would be delighted to have the chance to seed a planet with life, or to modify existing life-forms, and to return in person many thousands of years later to check the results, being themselves only a few tens of years older. A few years would be spent at each star system visited, not only for planetographical studies, but also for refuelling. Most star systems, it is believed, are like our own in that they have giant gas-planets similar to Jupiter in more distant orbits, which would provide a plentiful supply of

hydrogen. The expeditions might also take the opportunity of leaving a beacon at each stop, which would announce to their base planet and to their sister expeditions that they had been there. Communications would be impossible for them while on the move, but simple messages could be sent in this way. While the ships and their crews were hurtling between the stars, radio waves from the beacons would spread through the galaxy, slowly by our time but rapidly by that of the travellers. At each stop, they could scan the sky with a simple antenna to pick up the latest news. It has been suggested that the pulsars are such beacons, but we do not as yet know of the mechanism by which such powerful radio sources could be controlled.

Life in the travelling communities would be rather like that in the village of Brigadoon, which exists for only one day in each century, if the writers of that musical comedy are to be believed. But if relativistic interstellar travel is possible, it is possible that many such communities are roaming through our galaxy at this moment. Perhaps the occupants of one of these ships are the gardeners who claim our Earth as their patch. Let us help them to look after it in the way that they wish. If they were to decide that we were weeds, a selective disease would soon destroy us, and we would be replaced by a less aggressive variety. Already, a new attitude to Earth has emerged, perhaps evoked by the photographs of our planet taken by Apollo astronauts. No-one, seeing Earth hanging like a brilliant blue jewel in space, can repress a surge of emotion; let us translate this emotion into action before it is too late.

*How odd
of God
To choose
The Jews*

William Norman Ewer

We have suggested that we (*Homo sapiens*) may be the product of an as-yet-unfinished artificial breeding programme master-minded by the starmen.

Now, not only the Bible, but other ancient sources also, state that the 'gods' and 'angels' were barely distinguishable from men. How likely is it that the starmen would resemble us

physically? If an extraterrestrial spacecraft were to land in our garden might we expect a blue octopus five metres high to emerge from it? Or little green men with antennae on their heads? Or are such beings merely cartoonists' devices for representing visiting aliens?

From the so-called legends, it does seem that the starmen were very like ourselves, and were even able to interbreed with Earth people, a sure sign of genetic relationship. It is in this fact that we find the clue to the reason for the Lord's selecting the Israelites for cultural improvement. He could have picked any suitably-sized indigent group of humankind, yet he staged an elaborate series of plagues and a dramatic escape from Egypt. The simplest reason for this, in our view, is that the Lord was descended from the same stock as that from which the Israelites came.

We have hinted at the possibility of specimens of life on earth being taken by the starmen from time to time for study and improvement. If this were so, it seems likely that one batch of specimens was taken from the ancestors of the nation later enslaved by Egypt. And the Lord was a descendant from that specimen batch, a cousin of that enslaved nation. We cannot know the length of time between the collection of the specimens and the return of their descendants to Earth. Perhaps they passed through many generations, graduating from laboratory specimens, to technicians, to designers and engineers. Perhaps one of them became curious about his origins, looked up the research records, and discovered that his ancestors had come from the third planet of a solar system at the edge of the galaxy. He decided to visit his ancestral planet. He planned his expedition, acquired a spaceship, selected his crew, procured his equipment and set off. Within a few years (ship's-time) he and his men were in Earth orbit. The rest is history.

Is this reconstruction far fetched? We do not think so, for it explains so much. It accounts for the legends of the Middle East in which starmen bred with the local population. It accounts for the similarity between the Lord and his angels and ourselves. Most important, it accounts for the Lord's choice of the Israelites - an action which seems totally unaccountable to many gentiles - and for the Jews'

irrepressible conviction that they are the Chosen People.

If such intervention by the starmen did occur from time to time, the inexplicable anomalies in evolution need no longer worry us. The sudden emergence of a whole variety of life-forms; the variety of hominid species – a new one unearthed with every turn of the spade, it seems; the instant civilizations of the ancient world; all are simply explained. We have postulated a 'gardener', the master-mind responsible for the evolutionary experiments on our Earth. Perhaps he has now handed over control of this section of the galaxy to the Lord, so that we shall receive visits every few thousand, rather than every few million, years.

However, it would do no one any good if the Lord, on his next visit, were to land on the lawns of the White House or the Kremlin, step from his craft, and say 'take me to your leader'. The US Department of Defense operates a detection system known as Norad, and the proud boast is that it keeps track of anything bigger than a greenfly which flies over the territories of the United States. The USSR has a similar system, but we know less about its performance. If the Lord were to reappear, without warning, he would almost certainly set off the ICBMs before he could disclose his identity. He must bide his time: when he returns there must be no mistakes. He has no need to visit Earth just to find out what is going on – that can be comfortably monitored via our radio and television transmissions. The limited range of transmissions on Earth is due to the curvature of the surface, not to lack of transmitter power. Many transmitters put out a signal strong enough to be received on the Moon, even using standard domestic equipment. We can be sure that anyone out there has more than enough information on our doings.

We have suggested that the development of life itself, then the evolutionary process culminating in *Homo Sapiens*, may have been promoted by influences outside our planet. We know that man's cultural evolution was also suddenly boosted – in Egypt, Mesopotamia, India, South America and China to name but a few – and that such cultural boost is accompanied by stories of 'gods' from the sky, who visit and perform 'miracles'.

Is this a coincidence?

The Lord promised that he would come again, and today devout Jews are still patiently awaiting his arrival. There are many estimates in their traditions as to how long it will be before the Second Coming; they are all of the order of thousands of years. It is now about 3,500 years since the last visit, and the next could be at any time. The traditions mention a star in the east – no star will remain stationary above the eastern horizon, unless it is in a synchronous orbit around the Earth, about 39,000 km away (one tenth of the distance to the Moon). However, a starship wishing to rendezvous with the Earth in its orbit will approach in the plane of the ecliptic, a narrow band running from the eastern to the western horizon. Approaches from the north or south are possible, but wasteful of fuel. So if an approaching ship were visible, it would be seen to rise in the east and set in the west, like the Sun or Moon. Perhaps even at this moment, having checked their approach, the Lord and his crew are climbing on to their acceleration-couches, and connecting themselves into life support systems. Soon, they will fall into a drugged sleep, the engines of their starship will rumble and come alive, and a brilliant flame will lance forth from the exhaust nozzles. Many weeks will pass as the ship decelerates, the astronauts' bodies forced deep into the cushioning, the motors struggling to reduce the velocity to the leisurely 100,000-odd kilometres per hour at which the Earth potters around the Sun.

On Earth, astrophysicists will have observed the new star, and will put forward wild theories to account for its enormous blue-shift. The spectra of stars are usually shifted towards the red, indicating that they are running away from us – but this mysterious object is rushing straight at us, at very high speed! However, they will soon see the blue-shift become smaller, indicating that the object is slowing down, and they will observe that it has parallax, so cannot be far away. Tearing their hair, the scientists will punch data into their computers till overload lights flash and fuses blow, but to no avail. While consternation and panic reign in the observatories, at the Wailing Wall in Jerusalem bearded, ringleted Jews will smile quietly to themselves and say a prayer of thanksgiving – for they will know that this is the star which heralds the return of

the Lord of their forefathers. Their long wait has not been in vain; soon they will renew their acquaintance with him and perhaps also with the patriarch Enoch, and the prophet Elijah.

These speculations have taken us a long way from our original subject, and *are* no more than speculations, but we felt it necessary to provide some answers to the questions about the Lord and his reason for choosing the Israelites. We started out to discuss some ancient 'religious' texts which are not about religion as we understand it, but about engineering. We took these texts at face value, and found a description of a manna-machine. Some people say that ancient legends should not be taken seriously, implying that our ancestors were credulous fools, which we believe they certainly were not. Apart from anything else, there are often details in the ancient legends which must lead us to suppose that they are based on fact. The Israelites would not have thought that the material we have been examining was so important without good reason, and we should not insult them by dismissing it. In fact, close study of ancient legends can pay dividends – we may cite the example of Heinrich Schliemann. Schliemann started life as a grocer, but his main spare-time interest was ancient Greek literature, particularly the books of Homer. Up to that time, everyone thought that these books were merely a collection of old folk-tales, with no foundation in fact. The *Iliad*, for example, described the siege of Troy by Greek warriors, but nobody who thought that Troy had existed was taken seriously. However, Schliemann read the books closely, particularly the geographical details. He also built up a very successful business, and soon had money enough to go to Turkey, and hire labourers. Sticking his heel in the ground, he said: 'Dig here!' And there was the city of Troy.

We have mentioned religion and engineering as if the two were somehow mutually exclusive, at opposite ends of the spectrum of knowledge, the sublime and the gorbliney. But as a result of our researches we have concluded that in the old days religion and engineering were one and the same thing. Priests were the privileged few who understood the 'mysteries of the gods', and were able to control the vast forces of the

machines entrusted to them. Why, in ancient times, did the priests have such a stranglehold on the populace? Was it simply that they were clever psychological manipulators, who knew how to predict eclipses, and who could persuade the people to part with a large share of their wealth to make the sun shine again? As we have said before, our forefathers were not superstitious idiots and therefore the commanding position of the early priests must have had some foundation in their abilities. Once again, the starmen provide a simple explanation.

The early kings were strong men, military leaders, and dispensers of rough justice to their own people. Few of them were diplomats who could engage in subtle negotiations. When the starmen came, with their overwhelming powers, the kings knew that they were hopelessly outclassed, and the only way that they could hold their own was by guile and intrigue. Being themselves blunt men, the kings needed ambassadors, intellectuals with a machiavellian turn of mind who could negotiate with these newcomers. And so the priestly class evolved, a corps of diplomats who handled negotiations with the starmen. As a result, priestly power grew, and in some cases took over the government of the nation; monstrous theocracies evolved, such as that of ancient Egypt. Israel avoided this fate, probably because of the character of that great leader, Moses, one of the most remarkable men this world has ever seen. Moses was able not only to keep the Israelites in order, but also to handle all the negotiations with the Lord; the early priests had little to do except operate the manna-machine, though, if the *Zohar* is to be believed, Moses played a part in this too. Because Moses was able both to lead his people and to negotiate with the Lord, power did not become concentrated in the hands of the priests – and Israel did not become stultified as other nations did.

Once the 'gods' had departed, the priests were out on a limb – the real basis for their power had gone. They tried to keep the myth going as long as possible – in Egypt, boys were dressed up in 'god' costumes, and made to appear in the temples before the people. When their term of service was up, the boys were put to death, as were any others who discovered the deception. However, they could not fool all the people all

the time, and sooner or later the secret got out – the gods had gone. The priests were then forced to develop their skill in psychology, skill in making their congregations feel dependent, in creating a permanent guilt complex which could only be assuaged by making large contributions to already-bursting coffers.

As a result, religion became distorted. Religious observation was once a straightforward matter of maintaining good relations with beings from the sky; now it devolved into a meaningless activity dedicated to the maintenance of the priesthood. The more the people lost faith, the greater the repression needed to preserve the priestly supremacy. The middle ages saw the lowest point of the history of religion, with all manner of atrocities being perpetrated in its name. However, in modern times, religion has found another role – starmen forgotten, our religious organizations now concentrate their efforts on good works. The 'gods' have gone, and we no longer need priests to intercede with them on our behalf – but we do need them to preserve us from ourselves.

Our religious leaders are anxious to discard the ancient legends of our holy books, and so dismiss them as myths, while perversely asking us to have 'faith'. We still swear to tell the truth with our hands on a book which, they tell us, is full of invented fantasies. Ancient writings have been suppressed, mistranslated, misinterpreted, and dismissed, not maliciously perhaps; rather through lack of understanding.

Now at last we have reached a point where the legends can be understood – but the gap between the scientists, who understand, and the theologians, who have studied the legends, is almost too great to be bridged. Most scientists, contemptuous of the loose and woolly reasoning of the mystics, dismiss anything mystical as beneath their notice. Yet ancient writings, shorn of their mysticism, may contain answers to at least some of the problems of science. But scientists who do take a hand in theological matters are asking to be despised and discredited; their very scientific reputations may be in danger.

The theologians in their turn cannot be said to be eagerly seeking technical interpretations of their texts. Either they do not see that science has something to offer them, or they fear

that, shorn of their mysticism, they will have nothing.

Those who venture into the grey areas between and beyond science and religion risk being dubbed cranks – and we cannot deny that many of them are. Their expositions may be dismissed as lunatic ravings, and their books classed as ‘fiction’.

We are fully aware of the risks we ourselves have taken in writing this book, but we have written it because we believe we have found a truth, and that we should give others a chance to share our discoveries, examine them, and draw their own conclusions. For our part, our work has strengthened our beliefs: we believe that we have restored some credibility to parts of the Bible; credibility which has gradually been draining from it as the frontiers of materialism and technology have advanced. Schliemann, in his time, was thought a crank – but perhaps, even as Troy was excavated from the Hisarlık Mound, so will the Ancient of Days emerge again, in all its awful majesty, from a cave somewhere in Jordan. Technology has put itself at the disposal of religion, through the medium of two down-to-earth twentieth-century engineers. Who dares deny that ‘the gardener’ works in a mysterious way?

APPENDIXES

Appendix I

On Hebrew and Aramaic

Both Hebrew and Aramaic are written from right to left, and use the same alphabet. To European readers, there are few things more forbidding than a book with Hebrew words in the text, and for this reason we have transliterated into Roman letters, sometimes using the system adopted by Mathers in *The Kabbalah Unveiled*, and alternatively a more pronounceable system. The former is not ideal, but it will enable readers to compare our work with that of Mathers, and to follow our philological arguments. Mathers' system does not give any idea of how the words are pronounced, but nobody really knows that anyway.

Likewise, there are many words whose meanings are not known with certainty, if at all. We have discussed cherubim in Chapter 17; we may also quote the example of seraphim, popularly supposed to be some kind of angel. In fact, for the root ShRP Davidson's dictionary lists: (1) A species of venomous serpent; (2) (In the plural) an order of angelic beings attending upon the divine majesty, represented (Isa. 6:2, 6) as having six wings; and (3) In the feminine form, ShRPH, a burning, particularly of the dead. In the apocalyptic writings, seraphim are described as six-winged, serpent-like creatures giving forth fire, a definition which combines these three meanings and gives an impression of something rather different from the conventional view of an 'angelic being'.

Conventional ideas of cherubim and seraphim are based wholly on interpretations by religious artists, rather than on scriptural descriptions or contemporary definitions, which are in fact more suggestive of machines than of living creatures.

Words of unknown meaning present one difficulty in the translation of ancient Semitic languages; another is that in these languages vowels are not written. However, this is not as bad as it sounds, since vowels are not as important to the meaning of the words as they are in European languages. For example, in English the letters BT could, with added vowels, produce any of sixteen words: bait, Bart, bat, bate, beat, beet, Bert, bet, bit, bite, boat, boot, bot, bought, but, or (the Isle of) Bute. So it is for almost all groups of consonants, and the meanings of the words produced are usually unrelated. However, in Semitic languages, all words with the same consonants have related meanings; for example, the word SPR can, with different vowels, mean a number, to count, to speak or tell, to write, a writer, or a book. These meanings are all related.

Furthermore, in Semitic languages only three vowels are generally recognized – a neutral *a* or *e* sound, a long *i* sound, and an *o* or *u* sound. There are few clusters of consonants, so each letter may be thought of as having a neutral *a* or *e* sound built in behind it. 'He writes', *SPR*, is thus pronounced *sepher* (because *P* is equivalent to *ph*). If one of the other two principal vowels occurs in a word, the letters *I* or *V* are used to denote them, and if the neutral *a* or *e* sound occurs at the end of a word, the consonant *H* is used – an example of this is found in the word *SPIRH*, *sephira*.

It is for this reason that so many Biblical names end in *H*; for example, Isaiah, Elijah, or Susannah: in Hebrew, the final *H* stands simply for an *ah* sound. However, in Babylonian Aramaic the consonant *A* was used for this purpose. Later, this practice became general and in Greek and other languages which lack the consonantal *A* sound, the letter *A* came to be used to represent a vowel sound only.

The original pronunciation of *A* was a light glottal stop, like the hyphen in co-operate, or in Isra-el, *IShRAL*. This sound is very important in these languages, and can make a big difference in meaning, for example, between *MLK*, king, and *MLAK*, angel.

The letter transcribed as *O* is also a consonant, like the glottal *A* but much stronger. It is a swallowing sound, like *ng* right in the back of the throat, and Europeans find it exceedingly difficult to pronounce correctly.

Semitic languages can be understood if the consonants only are written, and even today both modern Hebrew and Arabic are normally written without vowels. However, when ancient Hebrew ceased to be the everyday speech of Israel, it became necessary to devise a system for showing the correct vowels, so that students could pronounce the written words. Some consonants have two possible pronunciations, and a dot (dagesh) is added inside the letter to distinguish between the two. However, the dagesh, like the vowel points, is not normally printed.

Punctuation is also a quite recent invention; in Hebrew and Aramaic there was originally none at all. However, the sentences are normally short, and the start of each one is usually marked by an 'and' prefixed to the first word – which is obvious to any reader of the Bible. Moreover, the verb is usually the first word in a sentence.

So, although there is some scope for reading texts in different ways, the meaning is in fact very clear in these languages. In doing our own translation, we usually found that the straightforward dictionary meaning was the one which fitted our interpretation best – it was the kabbalists who had had to twist the meanings to suit their purposes.

ON HEBREW AND ARAMAIC
THE HEBREW - ARAMAIC ALPHABET

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Letter	Final form	Transliteration	Name	Numerical value
א		A (')	Aleph	1
ב		B	Beth	2
ג		G	Gimel	3
ד		D	Daleth	4
ה		H	He	5
ו		V	Waw	6
ז		Z	Zayin	7
ח		Ch	Cheth	8
ט		T	Teth	9
י		I	Yod	10
כ	ך	K	Kaph	20 final 500
ל	ל	L	Lamed	30
מ	ם	M	Mem	40 final 600
נ	ן	N	Nun	50 final 700
ס		S	Samekh	60
ע		O (')	Ayin	70
פ	ף	P	Pe	80 final 800
צ	ץ	Tz	Tzaddi	90 final 900
ק		Q	Qoph	100
ר		R	Resh	200
ש		Sh	Shin	300
ת		Th	Taw	400

Note. The final forms are not always assigned this larger value.

Appendix II

References to the Bible and the *Zohar*

We give chapter and verse, followed by page number(s). Where more than one verse is quoted, we give the number of the first only.

THE BIBLE

Genesis	19:16	4	12: 3	213
* 2: 9 96	20: 6	41	21: 5	113
17 205	25: 5	160	21: 6	209
* 17: 1 205	25:10	216		
17: 9 151, 203	25:22	220	Numbers	
* 27:28 38	26	206	3: 4	210
38: 9 151	28:30	218	6:24	236
	30:10	222	7:89	220
Exodus	30:26	223	11	xv
1:15 11	32	202	11: 4	61, 210
16 xiv	40:36	207	11: 7	76
* 16: 4 38			14:18	118
16:31 75	Leviticus		21: 5	211
16:33 244	8: 1	15	27:21	218
19: 4 198	10: 1	15		

*indicates that the Biblical verse is quoted in the *Zohar* text.

REFERENCES TO THE BIBLE AND THE ZOHAR 267

Deuteronomy

5:28 137
6: 4 158
8 xvi
23:10 151
32:49 239

Joshua

2: 9 212
3: 4 208
5 xvi
5: 3 212
5: 5 203
5: 9 44

1 Samuel

4: 3 227
4: 7 216
5 216
5: 9 229
6:19 216
28: 6 219

2 Samuel

6: 6 216
6: 7 230
6:14 205
7: 2 231
* 22: 9 104
22:11 234
* 22:24 205
22:24 206

1 Kings

5 233

2 Chronicles

4: 2 48

Nehemiah

9:20 xvii

Psalms

18:10 234
22: 1 232
25: 6 44
25:14 151
* 34: 8 136
40:10 43
68: 5 234
* 69:14 100
* 74:13 29
77: 8 44
78:24 xvii, 59
79: 8 42
* 89: 2 42
89:49 44
90:14 43
*104: 1 159
118: 5 118
119:77 42
130: 1 138
133: 2 223
*133: 3 37
136 44

Proverbs

* 1:20 93
* 9: 5 136
* 22: 9 122
* 26:15 114

Ecclesiastes

10:20 137

Canticles

3: 6 147
* 5: 2 38, 94
* 5:11 119
5:14 148
5:15 141, 147

Isaiah

6: 2 262
63: 3 146
63:15 190

Lamentations

3:22 43, 213

Daniel

7: 9 9, 48, 119
7:13 218

Hosea

6: 4 43

Micah

7:18 109, 112,
113, 174
7:19 114
7:20 111

Habakkuk

* 3: 2 117

2 Maccabees

2: 4 238

Matthew

26:26 41

Hebrews

9: 4 216

268 REFERENCES TO THE BIBLE AND THE ZOHAR

THE ZOHAR

BoM (*Book of the Mystery*)

1:25	28	1:41	93
1:36	141	2:47	93

LHA (*The Lesser Holy Assembly*)

43	175	253	87	651	89
58	86	310	110	666	116
59	26, 34	432	89	679	135
89	98	436	38	704	106
104	95	437	38	706	136
111	98	440	213	709	91
116	123	444	167	715	156
136	103	488	131	720	156
172	110	496	101	721	157
175	34	572	105	740	17, 145
188	87	582	136	746	157
193	95	592	136	759	36
218	159	595	138	761	144
251	96	598	139	779	112
252	86				

GHA (*The Greater Holy Assembly*)

34	155	133	134	229	109
39	31	134	122	244	93
43	167	137	122	245	93
44	38, 87, 94	139	126	287	17
48	39	149	126	292	111
53	167	168	47	365	113
56	36, 38	175	102	376	112
58	85	206	166, 167	398	41
64	86	208	221	399	113
85	167	215	111	439	115
89a	98	216	112	483	112
91	99	217	112	494	127
103	98	220	113	545	167
115	121	221	89, 113	555	167
121	122	222	87, 114	559	130
123	123	223	114	563	130

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570	118	723	139	964	155
577	130	731	116	968	165, 167
588	100	764	117	969	149
595	100, 158	773	117	971	205
607	125	820	118	1010	139, 140
619	126	834	119	1019	139, 140
632	137	838	32	1023	140
659	126	858	93	1028	155
661	103	872	118	1061	141
682	101	882	159	1066	134
686	104	888	149	1073	134
696	152	945	148	1165	112
716	153				

Other parts of the *Zohar*

1:148a 158

3: 67a 224

2:191a 211

2:620 159 (de Pauly)

Note. In the standard page-numbering of the *Zohar*, the three books of prime interest are to be found as follows:

BoM 2:176b-179a

GHA 3:127b-145a

LHA 3:287b-296a

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BY THE LORD GOD OF HOSTS.
HE FED THEM
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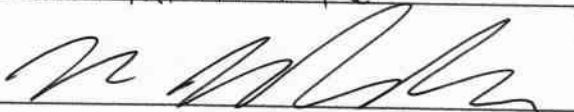


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